

Montana

Water Supply Outlook Report

June 1st, 2015



The Montana Snow Survey staff has been able to make the transition to maintaining the 131 SNOTEL sites in Montana, Wyoming and South Dakota with slightly easier access conditions than are typical for this time of the year. If you see us in the hills this summer come say hello! (Photo: Lucas Zukiewicz – Black Pine Ridge, outside of Phillipsburg, MT)

Snowpack this month is well below normal for the date, the persistent weather pattern experienced from January until the beginning of May of abnormally warm and dry conditions caused low elevations to melt during March, and mid to upper elevations made the transition in April. The cooler and wet weather pattern east of the Continental Divide has prolonged some high elevation snowpack, while west of the Divide active melt continued through the month. Streamflow forecasts for the summer are well below average, and water users should consult individual basins for the current snowpack, precipitation and future streamflow conditions.

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Montana Water Supply Outlook Report as of June 1st, 2015

How forecasts are made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Natural Resources Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

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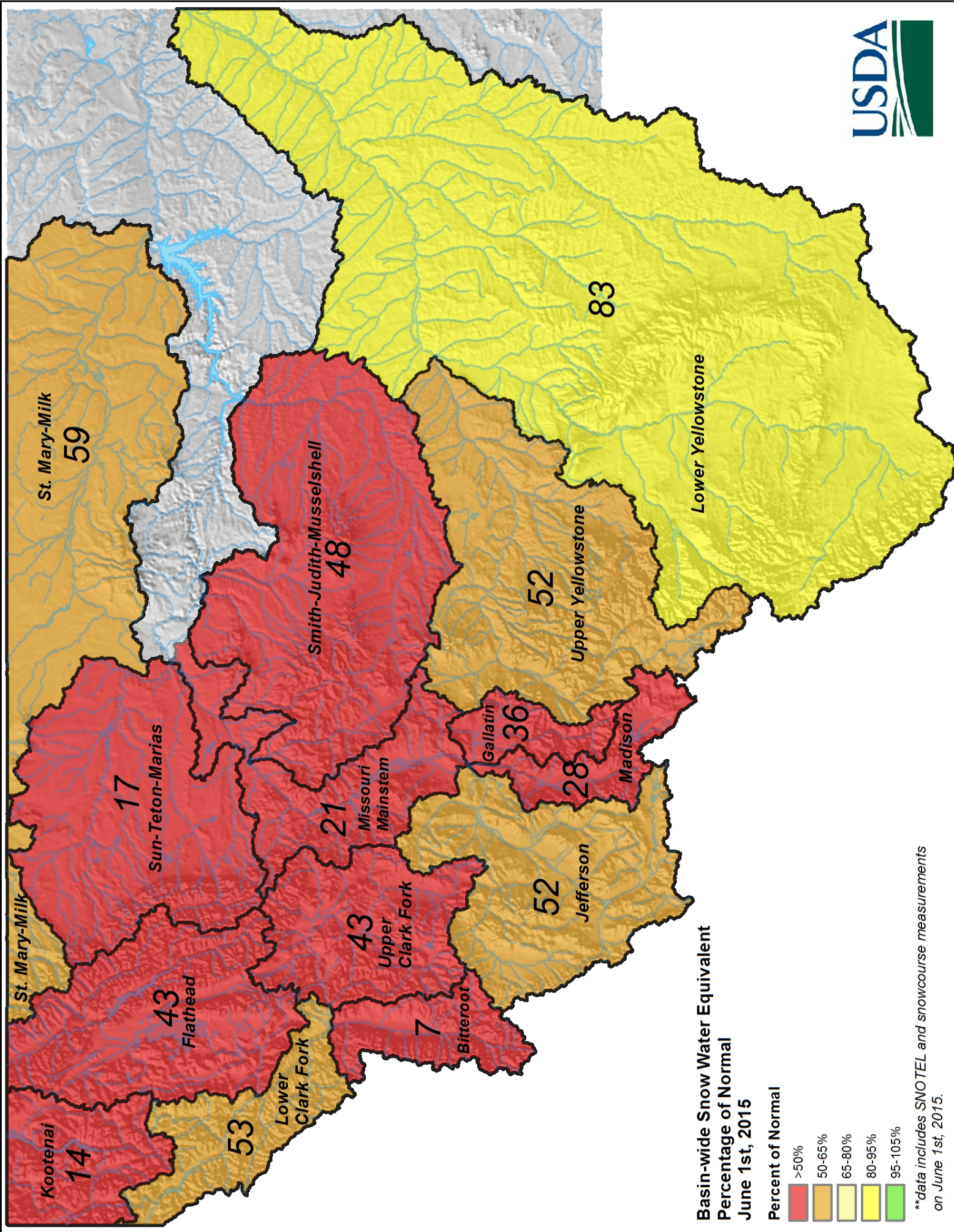
Snowpack

Using the term “normal” to describe the snowpack seems a little inappropriate this water year considering this winter and spring were anything but normal. Snowpack across the state peaked between mid-March and mid-April depending on elevation and location within the state. The persistent weather pattern we experienced during March and April with well above average temperatures and well below normal precipitation finally gave way during the second week of May, but only east of the Divide and in the southern and central basins. Cooler and wet weather patterns slowed the melt of the remaining snowpack east of the Divide, with a few basins along the southern Montana border and Wyoming receiving up to 20” of snowfall in a late spring storms at higher elevations. Snowpack west of the Divide continued to decline through the month of May leaving all basins in this region well below normal on June 1st.

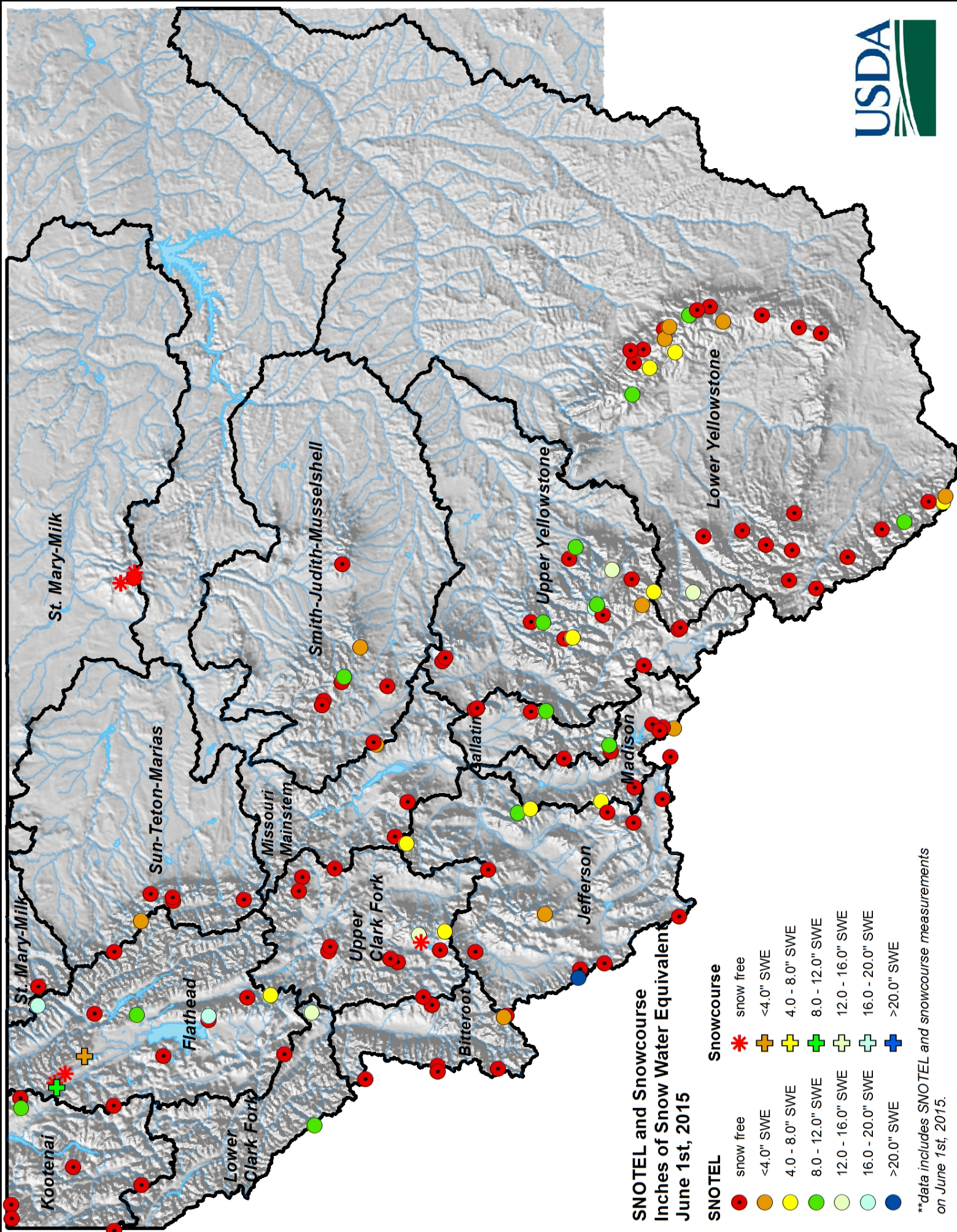
Data from SNOTEL and snowcourses shows that most basins have moved the bulk of their snow-water into the groundwater and surface water systems as of June 1st. 70 to 95 percent of the snowpack at SNOTEL and snowcourse elevations has melted by this point depending on the basin, decreasing the volume available off snow water available for runoff as we enter the more typical melt period. Higher elevations in some basins still have snowpack remaining to melt, but the major water yielding mid-elevations have made their big push for the year and will not drive future flows. 91 of the 131 (69%) of the SNOTEL sites have melted out at this time, and many of these melt out dates are the first or second earliest melt outs since automated records began.

Snowmelt is ahead of schedule in all basins this water year, and all basins are well below average for June 1st. State-wide snowpack is currently 42 percent of normal and 28 percent of last year at this time.

<i>Snow Water Equivalent</i>		
<i>6/1/2015</i>	% Normal	% Last Year
Columbia River Basin	37%	22%
Kootenai in Montana	14%	8%
Flathead in Montana	43%	27%
Upper Clark Fork	43%	27%
Bitterroot	7%	4%
Lower Clark Fork	53%	23%
Missouri River Basin	39%	31%
Jefferson	52%	42%
Madison	28%	26%
Gallatin	36%	27%
Headwaters Mainstem	21%	15%
Smith-Judith-Musselshell	48%	41%
Sun-Teton-Marias	17%	9%
St. Mary-Milk	59%	41%
Yellowstone River Basin	67%	46%
Upper Yellowstone	52%	37%
Lower Yellowstone	83%	54%
East of Divide	55%	41%
West of Divide	37%	22%
Montana State-Wide	42%	28%



**data includes SNOTEL and snowcourse measurements on June 1st, 2015.



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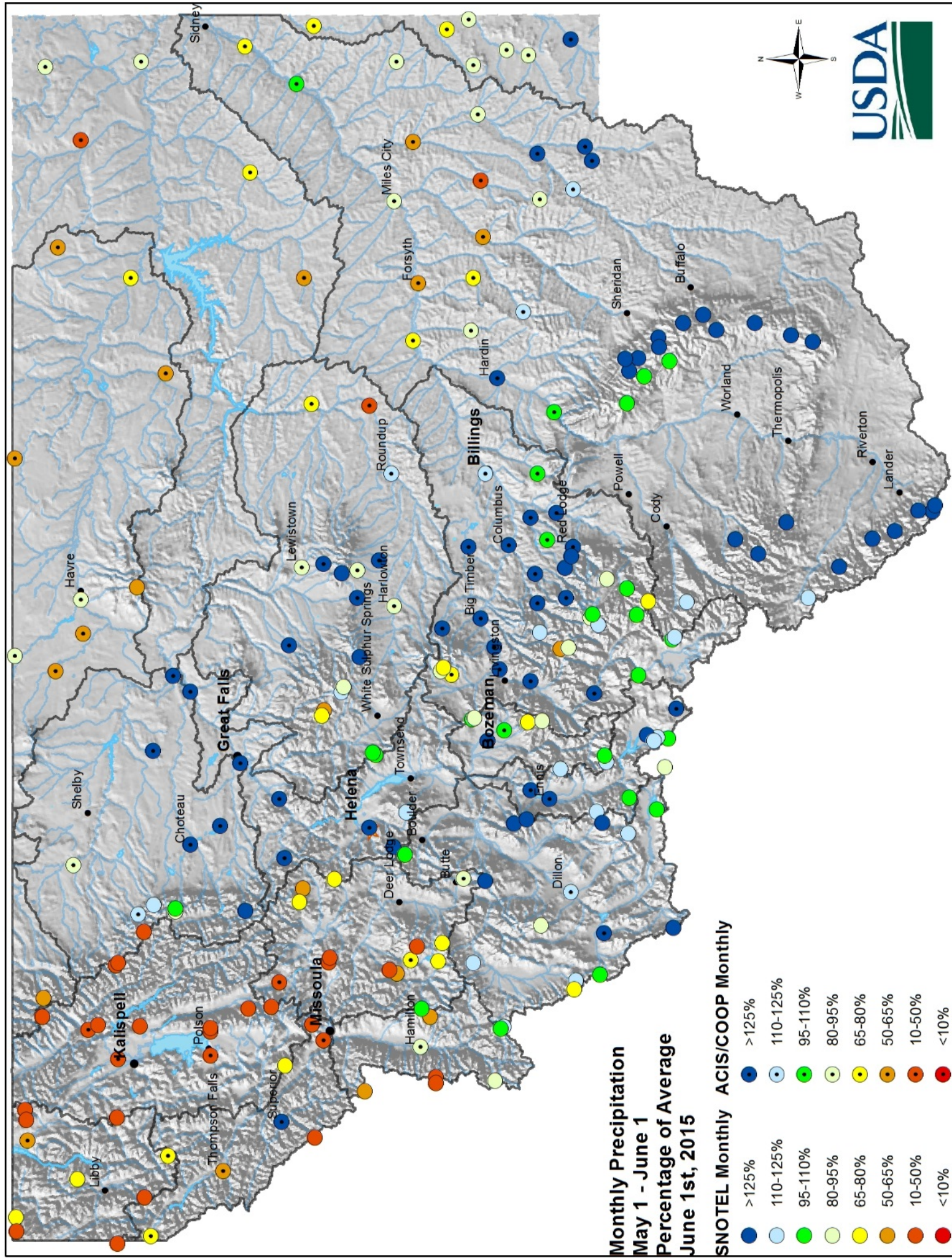
Precipitation

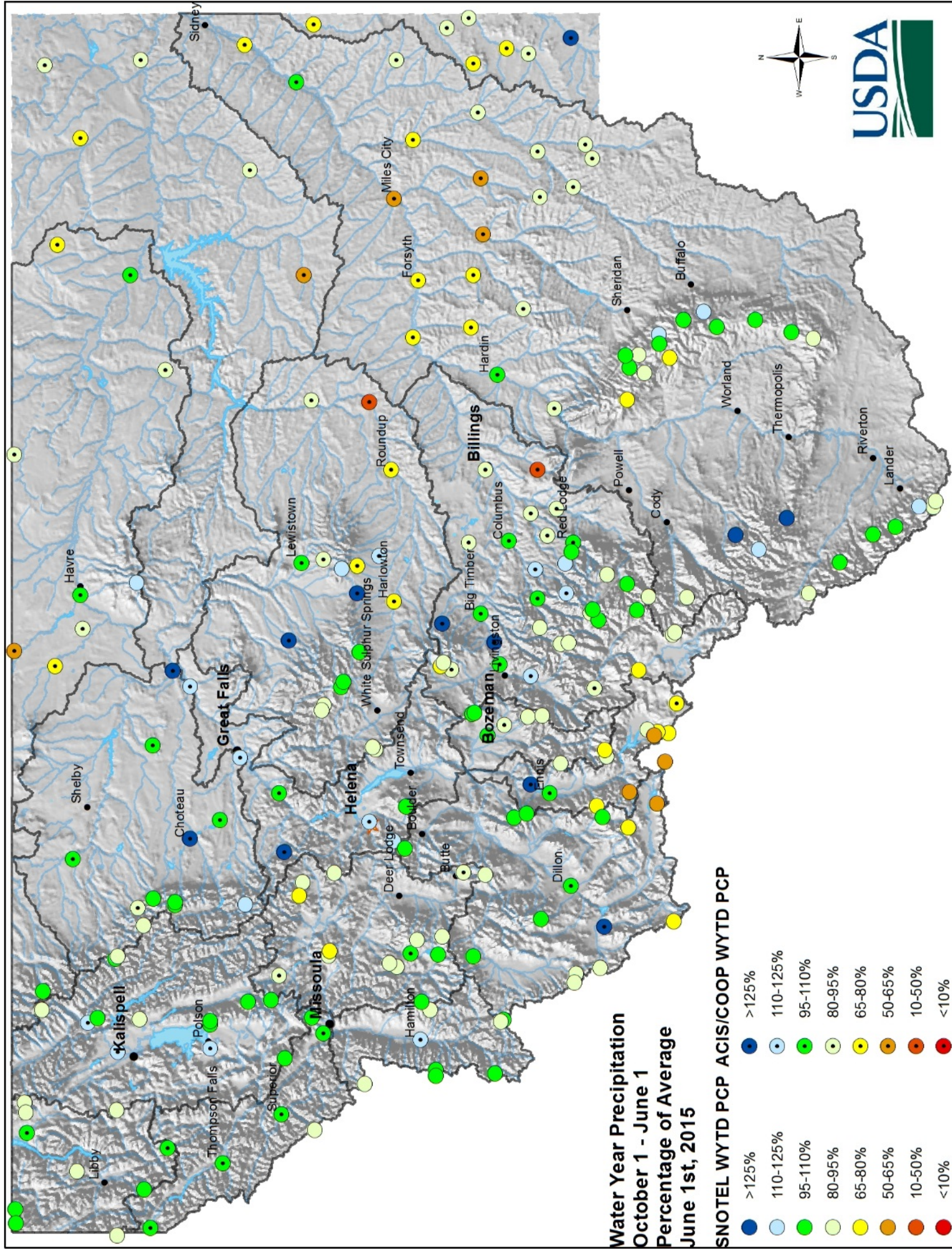
The month of May favored basins east of the Divide in terms of precipitation where some improvements were made during the month in regards to water year-to-date precipitation. The southern and central basins east of the Divide were favored while northern basins near the Canadian border trended with the basins west of the Divide. East of the Divide monthly precipitation was 119 percent of average, raising the water year totals to 93 percent of average for June 1st. Historically April, May and June are favored east of the Divide so hopefully this trend continues.

West of the Divide where snowpack was well below normal this winter and spring, basins received well below average precipitation during the month receiving only 32 to 66 percent. Overall, the basins west of the Divide received 53 percent of average precipitation for May. This region has seen below average precipitation for the last three months, and the below normal snowpack this winter combined with the below average spring precipitation resulted in below average streamflows during May.

State-wide monthly precipitation was 89 percent of average for the month of May, and is currently 93 percent of the water year-to-date average for June 1st. Due to the below normal snowpack this winter and spring and early melt of the snowpack, continued precipitation will be critical this summer as snowmelt contribution to streamflow will be below average.

<i>Precipitation</i>			
<i>6/1/2015</i>	Monthly % Avg	Water Year % Avg	WY % Last Year
Columbia River Basin	53%	94%	90%
Kootnenai in Montana	45%	93%	93%
Flathead in Montana	32%	95%	89%
Upper Clark Fork	65%	90%	86%
Bitterroot	66%	98%	84%
Lower Clark Fork	62%	95%	93%
Missouri River Basin	105%	91%	88%
Jefferson	118%	88%	85%
Madison	127%	82%	76%
Gallatin	100%	92%	81%
Headwaters Mainstem	108%	96%	86%
Smith-Judith-Musselshell	107%	94%	89%
Sun-Teton-Marias	89%	97%	96%
St. Mary-Milk	59%	97%	101%
Yellowstone River Basin	132%	94%	80%
Upper Yellowstone	118%	94%	77%
Lower Yellowstone	141%	94%	82%
East of Divide	119%	93%	85%
West of Divide	53%	94%	90%
Montana State-Wide	89%	93%	87%





Reservoirs

For today's date most reservoirs in the state are above average in terms of the average percent of capacity. That however does not mean that all reservoirs in the state are full. Snowmelt and summer precipitation usually provides water for inflows to the reservoirs, but this year the snowmelt component is ahead of schedule. The above normal percent of average storage for this date can be attributed to the early snow melt, and excellent carry over storage from last year when snowfall was more abundant.

The Smith-Judith-Musselshell, Gallatin and Madison River basins currently have reservoirs that are at full capacity on June 1st. The remaining reservoirs in the state will be reliant on the remaining snowpack at high elevation and summer precipitation to make future contributions.

Water demand on the reservoirs during the summer has an impact on in stream flows during the summer season, but also sets the stage for the next water year. If demand is high on the reservoirs this summer due to below normal precipitation they will have less carry over storage entering next spring. Conservative water use practices are always suggested as insurance in case snowpack is below normal next year as well.

State-wide reservoir storage is currently 113 percent of average for March 1st, and 112 percent of last year at this time.

<i>Reservoir Storage</i>			
<i>6/1/2015</i>	Current % Avg	Pct Capacity	Current % LY
Columbia River Basin	112%	82%	112%
Kootnenai in Montana	117%	76%	116%
Flathead in Montana	108%	88%	109%
Upper Clark Fork	100%	85%	97%
Bitterroot	111%	109%	112%
Lower Clark Fork	100%	97%	99%
Missouri River Basin	114%	81%	112%
Jefferson	93%	58%	113%
Madison	111%	99%	114%
Gallatin	118%	99%	128%
Headwaters Mainstem	115%	74%	112%
Smith-Judith-Musselshell	148%	104%	105%
Sun-Teton-Marias	111%	70%	110%
St. Mary-Milk	128%	71%	125%
Yellowstone River Basin	115%	72%	124%
Upper Yellowstone	111%	68%	108%
Lower Yellowstone	115%	72%	124%
East of Divide	114%	81%	110%
West of Divide	112%	82%	112%
Montana State-Wide	113%	81%	112%

Streamflow

Hopefully water users were prepared this spring, as much the state experienced an early start to this year's runoff. The low-mid elevation snow that typically primes Montana's rivers before peak runoff was melted due to the unseasonably warm temperatures and several rain events in March and April. This resulted in normal to well above normal streamflow conditions early this spring across Montana. The Kootenai River basin recorded new maximum daily flows at a handful of its gauging stations over the last week in March from substantial rain events. In contrast, the Beaverhead River basin has seen below to well below conditions most of this spring and due to lack of snow and will likely remain there this water year.

The early flush of the low-mid elevation snowpack through the system this spring set the stage for May-June flows this year. The majority of rivers west of the Divide experienced their snowmelt driven peaks around first week of May. With continued warm and dry weather east of the Divide rivers likely would have experienced their snowmelt driven peaks in late May, however many of these rivers are still on the rise due to substantial rainfall over the last 3 weeks. Much of this recent rain has driven higher elevation melt in the already lacking snowpack. Higher elevations snow typically sustain flows later in the summer, but this year are moving ahead of schedule similar to the lower elevations. Assuming normal precipitation conditions this summer streamflow will likely be below normal to well below average for the majority of the state later this water year.

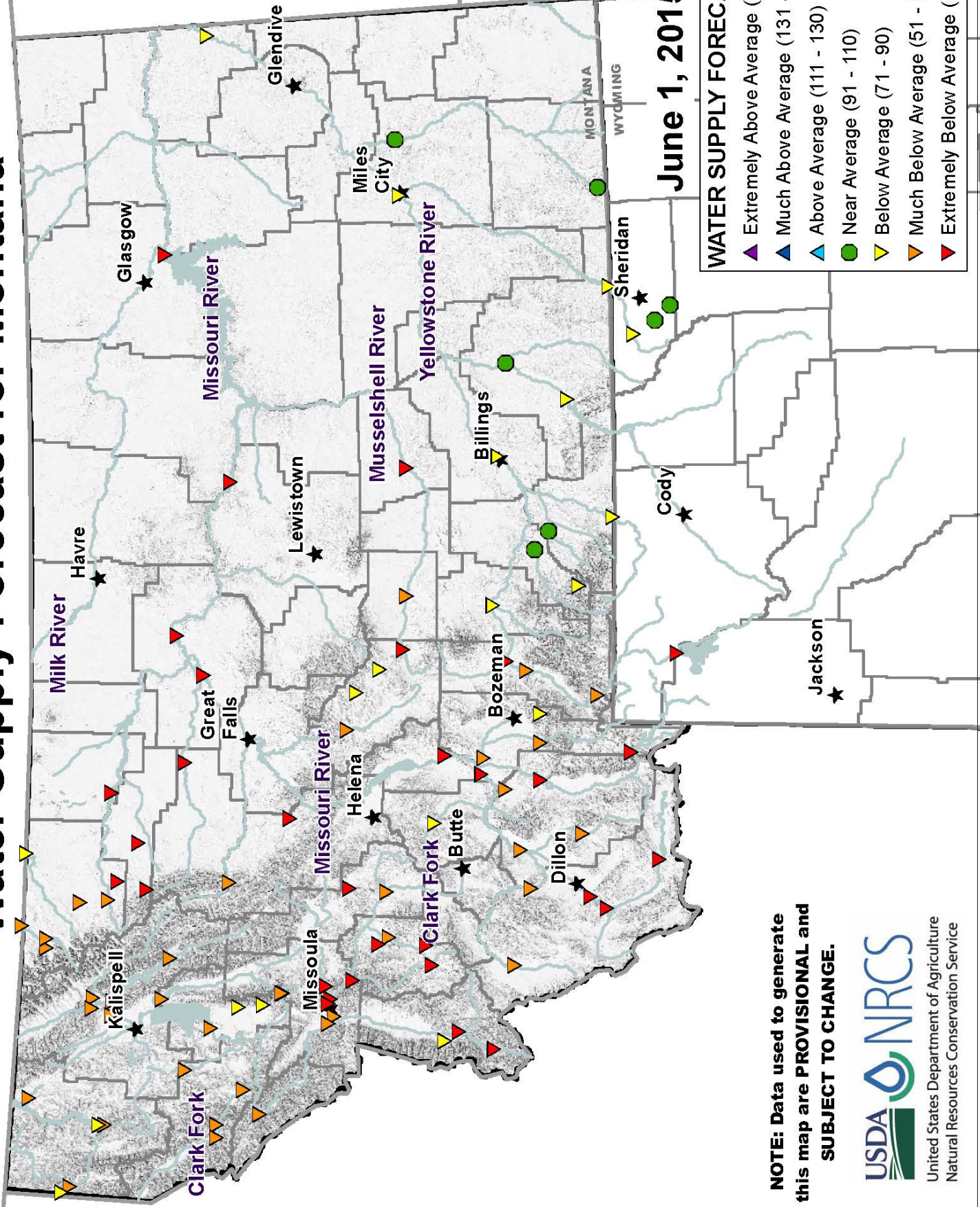
Consult the individual basin reports for a more comprehensive guide to individual basin conditions and expected streamflows this spring.

Following are streamflow forecasts for the period June 1 through July 31. **THE FIGURES IN THE TABLE BELOW ARE AN AVERAGE OF ALL FORECASTS WITHIN THE PARTICULAR BASIN AT THE 50 PERCENT EXCEEDANCE ONLY. ALL 50 PERCENT EXCEEDANCE FORECASTS ASSUME NEAR NORMAL WEATHER THROUGH THE END OF THE FORECAST PERIOD.**

FOR FORECASTS ABOVE AND BELOW THE 50 PERCENT EXCEEDANCE, LOOK TO THE SPECIFIC BASIN REPORTS.

<i>June-July Streamflow</i>		
<i>6/1/2015</i>	% Average	% Last Year
Columbia River Basin	58%	46%
Kootenai in Montana	61%	68%
Flathead in Montana	59%	39%
Upper Clark Fork	45%	36%
Bitterroot	56%	38%
Lower Clark Fork	57%	41%
Missouri River Basin	48%	42%
Jefferson	54%	57%
Madison	45%	50%
Gallatin	54%	51%
Headwaters Mainstem	48%	41%
Smith-Judith-Musselshell	52%	44%
Sun-Teton-Marias	44%	29%
St. Mary	55%	36%
Yellowstone River Basin	73%	52%
Upper Yellowstone	68%	50%
Lower Yellowstone	77%	53%
East of Divide	60%	47%
West of Divide	58%	46%
Montana State-Wide	59%	47%

Water Supply Forecast for Montana



NOTE: Data used to generate this map are PROVISIONAL and SUBJECT TO CHANGE.

SWSI

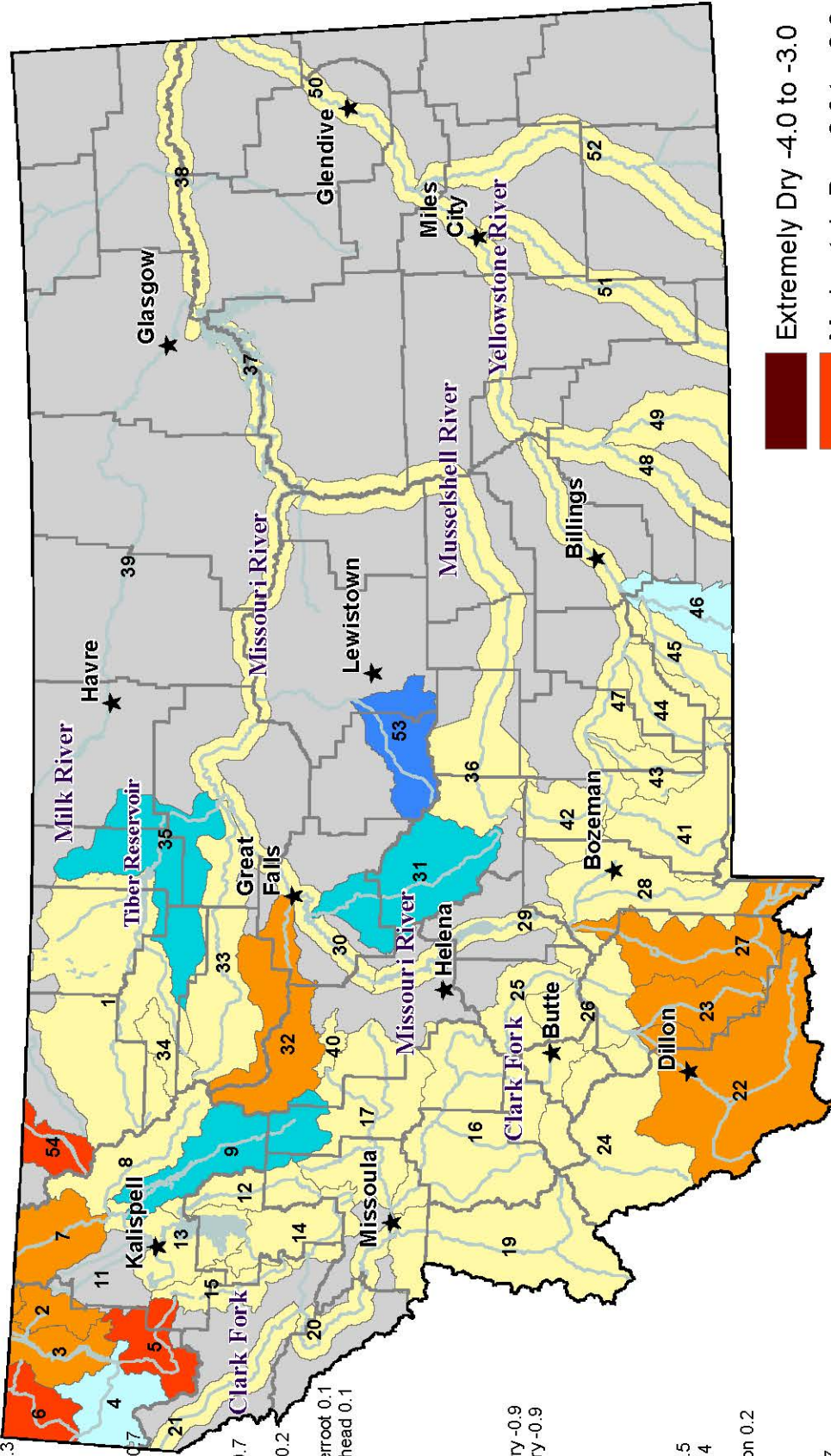
The Surface Water Supply Index (SWSI) is a measure of available surface water availability for the spring and summer months. Water users that rely on mountain precipitation can use the index to evaluate seasonal surface water supplies. The SWSI accounts for mountain snowpack, mountain precipitation, streamflow, reservoir storage, and soil moisture.

Watershed	This month's SWSI	Last Year's SWSI	SWSI Scale	
Marias above Tiber Reservoir	-2.7	1.0	+3.0 to +4.0	Extremely Wet
Tobacco	-3.1	1.1	+2.0 to +2.9	Moderately Wet
Kootenai Ft. Steele to Libby Dam	-1.1	1.8	+1.0 to +1.9	Slightly Wet
Kootenai below Libby Dam	0.4	1.4	+0.9 to -0.9	Near Average
Fisher	-2.2	1.4	-1.0 to -1.9	Slightly Dry
Yaak	-2.5	1.3	-2.0 to -2.9	Moderately Dry
North Fk. Flathead	-3.3	2.4	-3.0 to -4.0	Extremely Dry
Middle Fk. Flathead	-2.9	2.4		
South Fk. Flathead	-1.6	3.1		
Flathead at Columbia Falls	-2.7	2.0		
Swan	-3.8	2.5		
Flathead at Polson	-2.9	2.9		
Mission Valley	-3.4	-0.6		
Little Bitterroot	2.0	2.1		
Clark Fork above Milltown	-3.3	1.1		
Blackfoot	-3.3	2.5		
Clark Fork above Missoula	-3.4	1.7		
Bitterroot	-2.0	2.4		
Clark Fork River below Bitterroot	-3.0	1.9		
Clark Fork River below Flathead	-2.9	2.5		
Beaverhead	-1.6	-1.6		
Ruby	-2.0	-0.7		
Big Hole	-1.1	2.3		
Boulder (Jefferson)	-0.7	2.8		
Jefferson	-0.9	1.8		
Madison	-3.1	0.3		
Gallatin	-2.9	2.2		
Missouri above Canyon Ferry	-2.5	0.9		
Missouri below Canyon Ferry	-2.0	1.1		
Smith	-1.7	2.9		
Sun	-2.5	1.4		
Teton	-1.5	1.2		
Birch/Dupuyer Creeks	-1.1	-0.2		
Marias	-0.2	1.6		
Musselshell	0.0	2.1		
Missouri above Fort Peck	-0.5	0.7		
Missouri below Fort Peck	-0.5	0.5		
Milk				
Dearborn near Craig	-3.1	1.3		
Yellowstone above Livingston	-2.7	3.2		
Shields	-2.4	3.3		
Boulder (Yellowstone)	-2.5	3.5		
Stillwater	-1.4	3.0		
Rock/Red Lodge Creeks	1.6	3.4		
Clarks Fork Yellowstone	-1.3	3.8		
Yellowstone above Bighorn River	-2.1	3.2		
Bighorn below Bighorn Lake	1.3	2.4		
Little Bighorn	-0.7	2.5		
Yellowstone below Bighorn	-0.6	2.9		
Tongue	0.9	3.1		
Powder	0.2	2.2		
Upper Judith	0.3	1.0		
Saint Mary	-3.3	1.8		

RIVER INDEX & SWSI VALUES

- 1 Marias above Tiber Reservoir -0.7
- 2 Tobacco -1.4
- 3 Kootenai Ft. Steele to Libby Dam -1.4
- 4 Kootenai below Libby Dam 1.3
- 5 Fisher -2.4
- 6 Yaak -2.4
- 7 North Fk. Flathead -1.8
- 8 Middle Fk. Flathead -0.7
- 9 South Fk. Flathead 2.9
- 10 Flathead at Columbia Falls 0.7
- 11 Kalispell 8
- 12 Swan 0.7
- 13 Flathead at Polson 0.2
- 14 Mission Valley 0.2
- 15 Little Bitterroot -0.2
- 16 Clark Fork above Milltown 0.7
- 17 Blackfoot -0.2
- 18 Clark Fork above Missoula 0.2
- 19 Bitterroot -0.2
- 20 Clark Fork River below Bitterroot 0.1
- 21 Clark Fork River below Flathead 0.1
- 22 Beaverhead -1.8
- 23 Ruby -1.8
- 24 Big Hole 0.5
- 25 Boulder (Jefferson) 0.2
- 26 Jefferson -0.4
- 27 Madison -1.8
- 28 Gallatin -0.9
- 29 Missouri above Canyon Ferry -0.9
- 30 Missouri below Canyon Ferry -0.9
- 31 Smith 2.1
- 32 Sun -1.1
- 33 Teton 0.6
- 34 Birch/Dupuyer Creeks -0.5
- 35 Marias 2
- 36 Musselshell 0.9
- 37 Missouri above Fort Peck 0.5
- 38 Missouri below Fort Peck 0.4
- 40 Dearborn near Craig -0.5
- 41 Yellowstone above Livingston 0.2
- 42 Shields -0.7
- 43 Boulder (Yellowstone) 0.2
- 44 Stillwater 0.2
- 45 Rock/Red Lodge Creeks 0.7
- 46 Clark Fork Yellowstone 1.6
- 47 Yellowstone above Bighorn River 0.4
- 48 Bighorn below Bighorn Lake 0.5
- 49 Little Bighorn 0
- 50 Yellowstone below Bighorn 0.5
- 51 Tongue 0.5
- 52 Powder 0.2
- 53 Upper Judith 3.7
- 54 Saint Mary -2.7

Surface Water Supply Index (SWSI) Values



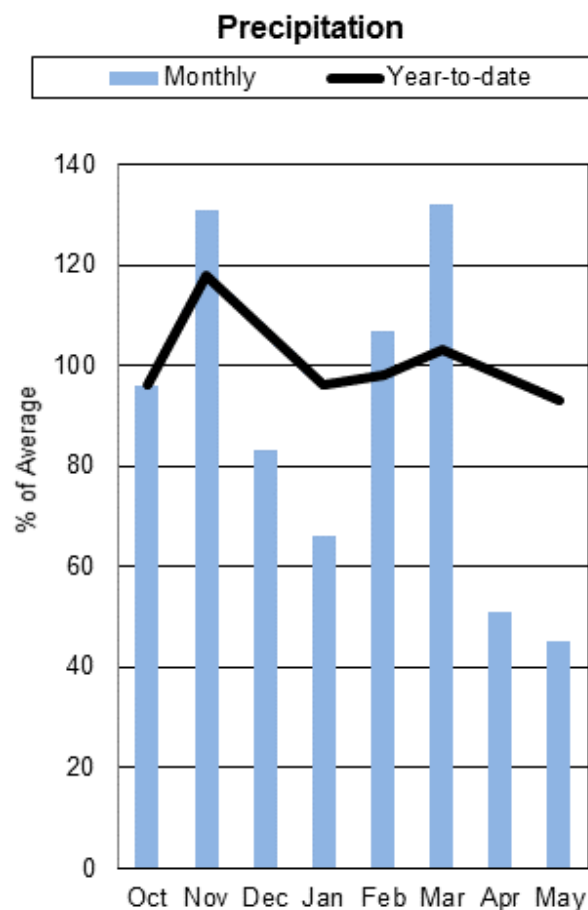
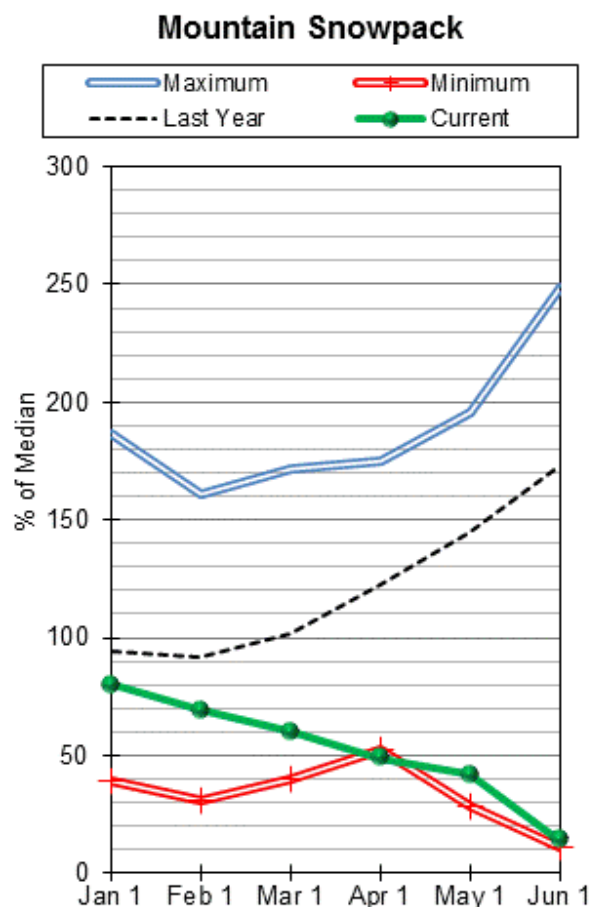
March 1, 2015

NOTE: Data used to generate
this map are **PROVISIONAL** and
SUBJECT TO CHANGE.



United States Department of Agriculture
Natural Resources Conservation Service

Kootenai River Basin in Montana



Snowpack in the Kootenai River Basin both in Canada and Montana disappeared throughout the month of May. Only a handful of sites, most of them in Canada, had any measurable snow on June 1st. For an area of Montana that is known for deep snow packs, it wasn't the case this winter. Low elevation snowpack made the transition to melt mid-March when rain on snow events increased river flows, likely numerical peak flows for the year on some streams, and began snowmelt. Most low elevation sites had melted out between mid to late April. The upper elevations in the basin were able to prolong their snowpack, but after mid-April made a rapid transition to melt which persisted through May. Snowpack in the basin is well below normal, approaching record low for this date. Snowmelt contribution to river flows is all but over on the Montana side of the border, and summer streamflow will be reliant on future precipitation. As a whole, the snowpack in the Kootenai River basin is currently 14 percent of normal for June 1st, and 8 percent of last year at this time.

Mountain precipitation for May was once again well below average throughout the basin and ranged from 29 percent of average in the Tobacco River Drainage to 56 percent of average in the Yaak River Basin. May valley precipitation was also well below average. Overall, the Kootenai River Basin in Montana was 45 percent of average for the month of May. Water year-to-date basin wide precipitation is 92 percent of average for June 1st, and 92 percent of last year.

Reservoir storage in Lake Koocanusa is 117 percent of average.

Fortunately, snowpack on the Canadian side is in slightly better shape and will provide some runoff on the mainstem of the Kootenai. Smaller rivers fed from the Montana side of the border will see well below average streamflows this summer unless substantial precipitation occurs. The basin-wide average June-July streamflow forecast for the Kootenai River is currently 61 percent of average and 68 percent of last year.

Kootenai River Basin In Montana Streamflow Forecasts - June 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

KOOTENAI RIVER BASIN in MONTANA	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Tobacco R nr Eureka	JUN-JUL	13.1	24	31	53%	38	48	58
	JUN-SEP	19	32	41	58%	50	63	71
Libby Reservoir Inflow ¹	JUN-JUL	2230	2670	2870	89%	3070	3520	3240
	JUN-SEP	2900	3450	3700	89%	3950	4500	4150
Fisher R nr Libby	JUN-JUL	15.5	27	36	59%	44	56	61
	JUN-SEP	24	38	47	63%	57	70	75
Yaak R nr Troy	JUN-JUL	31	57	75	58%	93	119	130
	JUN-SEP	44	73	92	61%	112	140	150
Kootenai R at Leona ^{1,2}	JUN-JUL	1730	2320	2590	71%	2860	3460	3640
	JUN-SEP	2430	3150	3480	75%	3810	4530	4640

1) 90% and 10% exceedance probabilities are actually 95% and 5%

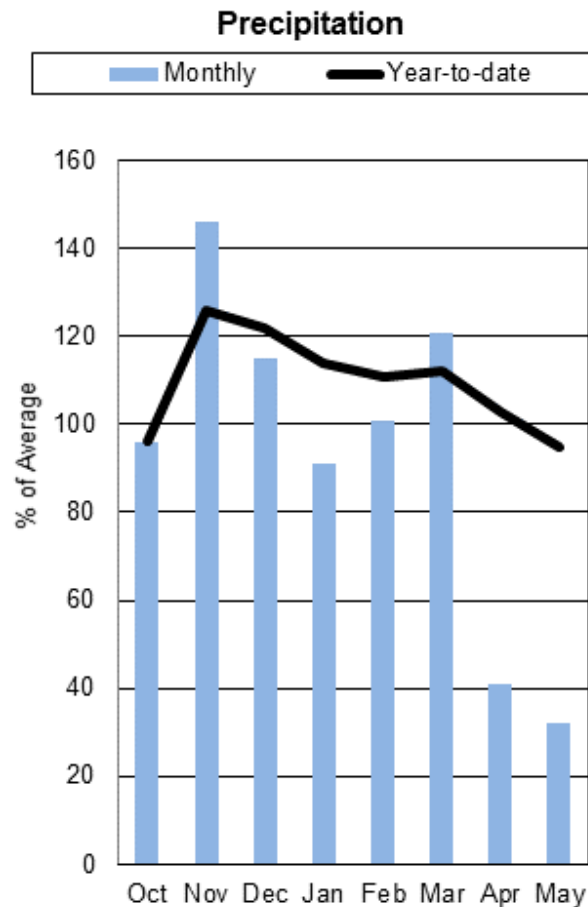
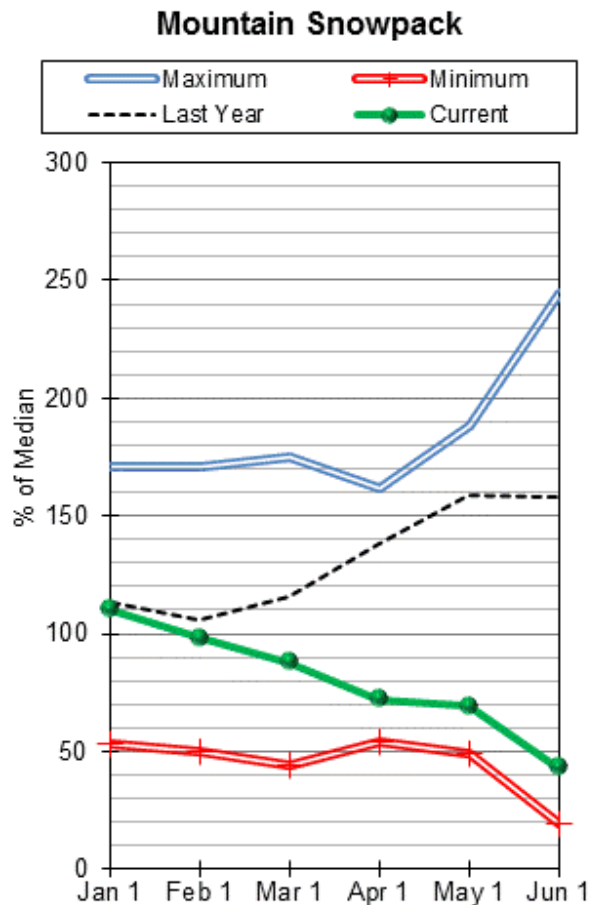
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of May, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lake Koocanusa	4362.7	3779.5	3736.0	5748.0
Basin-wide Total	4362.7	3779.5	3736.0	5748.0
# of reservoirs	1	1	1	1

Watershed Snowpack Analysis June 1, 2015	# of Sites	% Median	Last Year % Median
KOOTENAY in CANADA	5	45%	136%
KOOTENAI MAINSTEM	3	0%	217%
TOBACCO	2	35%	143%
FISHER	1		
YAAK	2	0%	93%
KOOTENAI RIVER BASIN in MONTANA	8	14%	165%
KOOTENAI ab BONNERS FERRY	12	37%	148%

Flathead River Basin



Like to Kootenai River Basin, this winter's snowpack in the Flathead struggled. By far the most snow can be found currently in the Swan River drainage. All low to mid-elevation SNOTEL sites melted out in early May. Upper elevations will provide some additional flow in the next month, but a substantial portion of the snow water has entered the river systems earlier than normal this spring. As of June 1st, all the remaining snowpack can be found at the very high elevations. As a whole, the snowpack in the Flathead River basin is currently 43 percent of normal for June 1st, and 27 percent of last year at this time.

Two small storms dropped precipitation in the basin during May, one around mid-month, and the other towards the end of the month. Mountain precipitation received from these storms was not enough bring the basin to near average precipitation, and valley stations did not fare any better. Overall, June precipitation for the Flathead River Basin was 32 percent of average. Water year-to-date basin wide precipitation is 95 percent of average for June 1st, and 89 percent of last year at this time.

Combined reservoir storages for the end of May are 108 percent of average for June 1st, and 109 percent of last year at this time.

River flows in the greater Flathead Basin were well above average in many locations from the middle of March into the middle of April. After this time many rivers trended towards average conditions, until the beginning of May when flows fell below average. This trend is expected to persist, with below normal flows into the summer time period. April and May have been below average for precipitation, a major change to a wetter pattern would be favorable for river volumes as the snowmelt component only has high elevation snowpack left to melt. The basin-wide average June-July streamflow forecast for the Flathead River is currently 59 percent of average and 39 percent of last year.

Flathead River Basin

Streamflow Forecasts - June 1, 2015

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

FLATHEAD RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
NF Flathead R nr Columbia Falls	JUN-JUL	230	340	415	54%	485	595	775
	JUN-SEP	340	460	545	58%	630	750	935
MF Flathead R nr West Glacier	JUN-JUL	260	375	455	60%	530	650	755
	JUN-SEP	355	480	565	63%	650	775	890
Sf Flathead R nr Hungry Horse	JUN-JUL	215	290	340	60%	390	460	565
	JUN-SEP	265	345	400	63%	450	530	635
Hungry Horse Reservoir Inflow ^{1,2}	JUN-JUL	290	460	540	63%	620	795	860
	JUN-SEP	365	555	640	65%	725	910	980
Flathead R at Columbia Falls ²	JUN-JUL	890	1220	1440	59%	1660	1990	2460
	JUN-SEP	1180	1550	1800	62%	2040	2410	2890
Ashley Ck nr Marion ²								
Swan R nr Bigfork	JUN-JUL	109	137	157	56%	177	205	280
	JUN-SEP	145	180	205	58%	230	265	355
Flathead Lake Inflow ^{1,2}	JUN-JUL	870	1430	1680	59%	1930	2480	2860
	JUN-SEP	1120	1750	2040	61%	2330	2960	3320
Mill Ck ab Bassoo ck nr Niarada	JUN-JUL	0.32	0.64	0.86	69%	1.08	1.4	1.25
	JUN-SEP	0.56	0.91	1.15	73%	1.38	1.73	1.58
South Crow Ck nr Ronan	JUN-JUL	3.3	4.3	5	77%	5.7	6.7	6.5
	JUN-SEP	4.3	5.4	6.2	78%	7	8.2	7.9
Mission Ck nr St. Ignatius	JUN-JUL	11.6	13.3	14.4	81%	15.6	17.3	17.7
	JUN-SEP	14.7	17	18.5	84%	20	22	22
SF Jocko R nr Arlee	JUN-JUL	6.8	9.1	10.7	63%	12.2	14.5	17.1
	JUN-SEP	9.8	12.3	14	67%	15.8	18.3	21
NF Jocko R bl Tabor Feeder Canal	JUN-JUL	6.2	7.9	9.2	60%	10.4	12.1	15.4
	JUN-SEP	7.5	9.6	11	64%	12.4	14.4	17.3

1) 90% and 10% exceedance probabilities are actually 95% and 5%

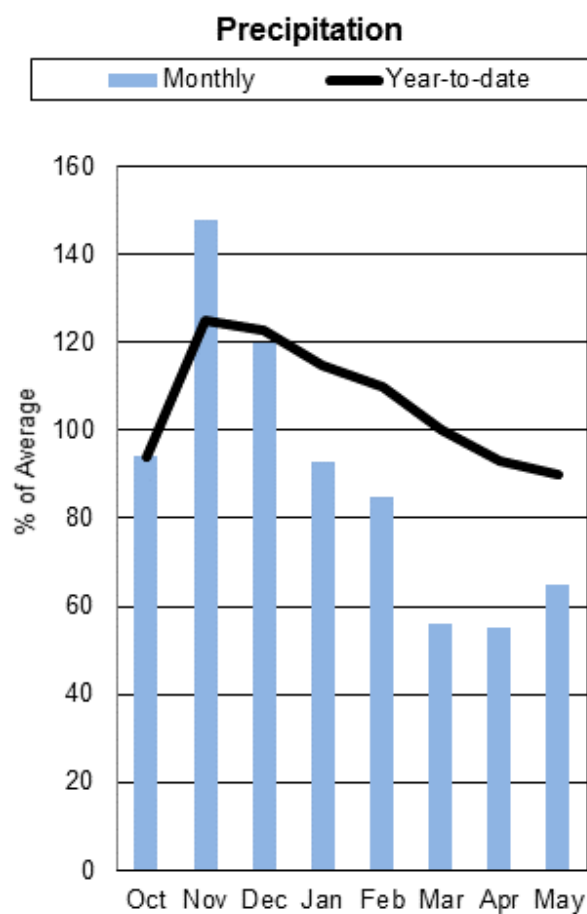
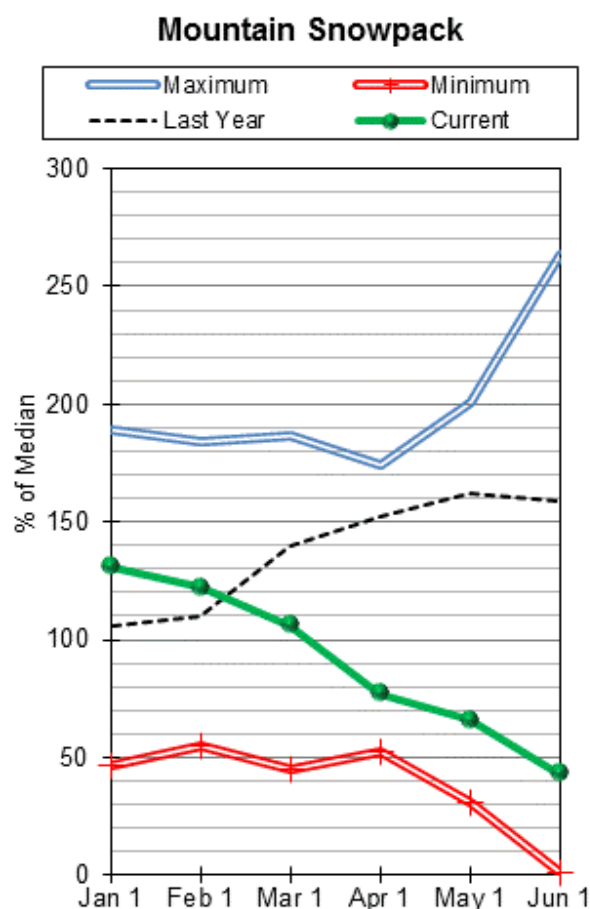
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of May, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Camas (4)	40.6	38.8	28.6	45.2
Lower Jocko Lake	2.8	5.3	3.7	6.4
Mission Valley (8)	46.0	49.7	63.0	100.0
Hungry Horse Lake	3048.6	2641.7	2733.0	3451.0
Flathead Lake	1584.4	1589.4	1538.0	1791.0
Basin-wide Total	4722.3	4324.9	4366.3	5393.6
# of reservoirs	5	5	5	5

Watershed Snowpack Analysis June 1, 2015	# of Sites	% Median	Last Year % Median
NF FLATHEAD in CANADA	1	0%	116%
NF FLATHEAD in MONTANA	6	45%	175%
MIDDLE FORK FLATHEAD	3	45%	151%
SOUTH FORK FLATHEAD	2	42%	118%
STILLWATER-WHITEFISH	5	44%	228%
SWAN	3	45%	140%
MISSION VALLEY	2	65%	142%
LITTLE BITTERROOT-ASHLEY	0		
JOCKO	3	42%	167%
FLATHEAD in MONTANA	16	43%	159%
FLATHEAD RIVER BASIN	17	42%	157%

Upper Clark Fork River Basin



Snowmelt was early this year in the Upper Clark Fork River basin at mid to low elevations, low elevations in made the transition to melt during mid-March, and most other elevations made the transition during the latter half of April. Snowpack declined significantly during May and like the other basins west of the Divide, the only remaining snowpack on June 1 was found at the highest elevations. As a whole, the snowpack in the Upper Clark Fork River basin is currently 43 percent of normal for June 1st, and 27 percent of last year at this time.

A series of storms throughout May brought precipitation to some parts of the Upper Clark Fork River Basin but in general well below average increments were recorded. Higher increments were seen in the upper reaches of the basin. However a few mountain sites recorded near to a little above average precipitation for May. Valley stations were not so lucky either and some low valley areas within the basin are extremely dry for this time of year. Basin-wide May precipitation was 65 percent of average for the month. Water year-to-date basin wide precipitation is currently 100 percent of average for June 1st, and 97 percent of last year at this time.

Basin-wide reservoir storage is at 97 percent of average and 121 percent of last year of last year at this time.

Early snowmelt at the low and mid elevations in the basin have decreased the amount of water available during the next few months. Upper elevation snowpack and future precipitation events will drive the summer streamflows. The basin-wide average June-July streamflow forecast for the Upper Clark Fork River basin is currently 45 percent of average and 36 percent of last year.

Upper Clark Fork River Basin Streamflow Forecasts - June 1, 2015

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

UPPER CLARK FORK RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Little Blackfoot nr Garrison	JUN-JUL	3	11.5	17.2	59%	23	31	29
	JUN-SEP	6.1	15.9	23	64%	29	39	36
Flint Ck nr Southern Cross	JUN-JUL	0.95	2	2.9	43%	4	5.8	6.8
	JUN-SEP	1.2	2.5	3.7	41%	5.2	7.7	9
Flint Ck bl Boulder Ck	JUN-JUL	2.8	10.9	16.5	53%	22	30	31
	JUN-SEP	12.3	23	30	68%	38	49	44
Lower Willow Ck Reservoir Inflow ²	JUN-JUL	0.44	0.96	1.4	39%	2	3	3.6
	JUN-SEP	0.99	1.66	2.2	49%	2.8	3.9	4.5
MF Rock Ck nr Philipsburg	JUN-JUL	2.2	9.7	14.8	44%	19.9	27	34
	JUN-SEP	6	14.4	20	49%	26	34	41
Rock Ck nr Clinton	JUN-JUL	0.3	30	51	39%	71	102	131
	JUN-SEP	16.9	51	75	46%	98	133	164
Clark Fork R ab Milltown	JUN-JUL	49	83	112	41%	145	200	270
	JUN-SEP	86	134	172	48%	215	290	355
Nevada Ck nr Helmville	JUN-JUL	0.73	1.57	2.3	40%	3.3	4.9	5.8
	JUN-SEP	1.3	2.4	3.3	46%	4.4	6.3	7.2
Blackfoot R nr Bonner	JUN-JUL	81	125	154	47%	184	225	325
	JUN-SEP	133	181	215	53%	245	295	405
Clark Fork R ab Missoula	JUN-JUL	96	198	265	45%	335	440	595
	JUN-SEP	186	305	390	51%	470	590	765

1) 90% and 10% exceedance probabilities are actually 95% and 5%

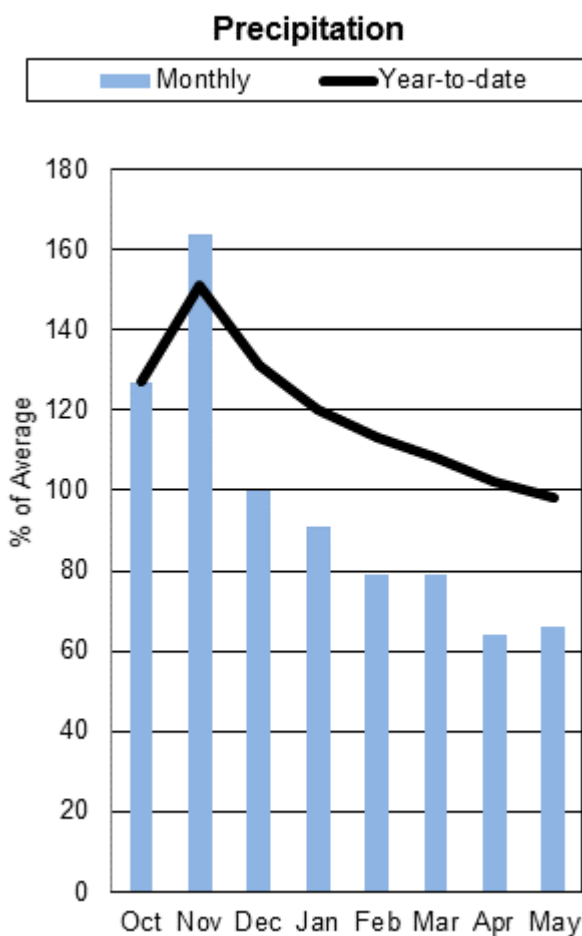
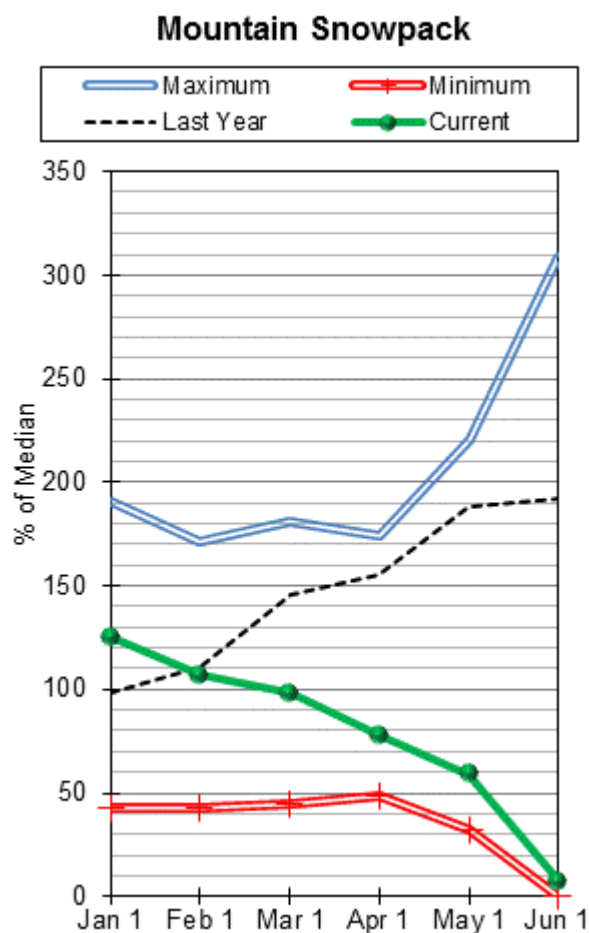
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of May, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
East Fork Rock Creek Res	10.8	12.0	10.6	15.6
Georgetown Lake	29.9	28.8	29.1	31.0
Lower Willow Creek Reservoir		5.0	4.7	4.9
Nevada Creek Res	9.9	11.5	10.9	12.6
Basin-wide Total	50.6	52.3	50.6	59.2
# of reservoirs	3	3	3	3

Watershed Snowpack Analysis June 1, 2015	# of Sites	% Median	Last Year % Median
CLARK FORK ab FLINT CREEK	5	56%	144%
FLINT CREEK	4	0%	593%
ROCK CREEK	2	0%	131%
CLARK FORK ab BLACKFOOT	10	44%	150%
BLACKFOOT	5	39%	171%
UPPER CLARK FORK RIVER BASIN	14	43%	158%

Bitterroot River Basin



The majority of the remaining snowpack from April disappeared pretty quickly during the month of May. Only one high elevation SNOTEL site recorded any measurable snow on June 1. A storm did hit the basin mid-month which slowed the melt down a little, and some high elevation sites did accumulate snow. However, this was short lived and sites within the basin continued with consistent melt for the rest of the month. As a whole, the snowpack in the Bitterroot River basin is currently 7 percent of normal for June 1st, and 4 percent of last year at this time.

Mountain precipitation during May was quite variable throughout the basin. SNOTEL sites in the West Fork of the Bitterroot received the best increments and ended up with near average monthly precipitation at 97 percent of average. SNOTEL sites on the east side of the Bitterroot Basin received slightly below average precipitation at 87 percent of average. SNOTEL sites on the west side of the basin were well below average at only 40 percent of average. Valley stations were near average for May. Basin-wide May precipitation was only 66 percent of average. Water year-to-date basin wide precipitation is currently 98 percent of average for June 1st, and 84 percent of last year at this time.

Painted Rocks (West Fork Bitterroot) Reservoir is currently 103 percent of average. Lake Como is currently 118 percent of average. Combined these are 111 percent of average and 112 percent of last year.

The lack of snowpack at SNOTEL elevations has decreased the forecast from last month for the summer streamflows. The basin-wide average June-July streamflow forecast for the Bitterroot River basin is currently 56 percent of average and 38 percent of last year.

Bitterroot River Basin Streamflow Forecasts - June 1, 2015

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

BITTERROOT RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
WF Bitterroot R nr Conner ²	JUN-JUL	9.9	13.5	16.3	29%	19.4	24	56
	JUN-SEP	15.2	20	24	36%	28	34	67
Bitterroot R nr Darby	JUN-JUL	56	77	92	44%	107	128	210
	JUN-SEP	102	129	148	55%	166	193	270
Como Reservoir Inflow ²	JUN-JUL	16.6	25	30	79%	35	43	38
	JUN-SEP	19.1	27	33	79%	39	47	42
Bitterroot R nr Missoula	JUN-JUL	240	315	370	62%	425	500	600
	JUN-SEP	220	310	365	52%	425	515	705

1) 90% and 10% exceedance probabilities are actually 95% and 5%

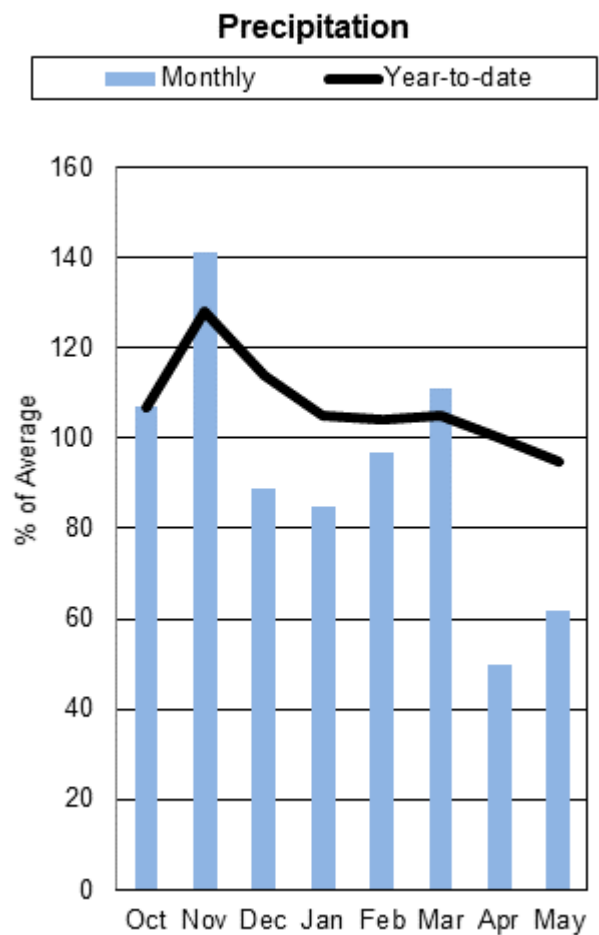
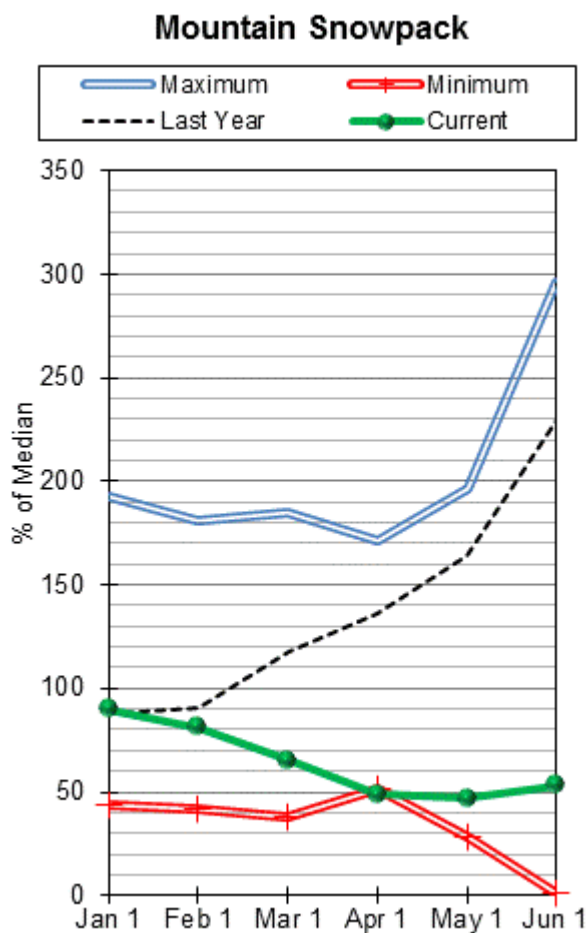
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of May, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Painted Rocks Lake	33.3	34.3	32.3	31.7
Lake Como	39.1	30.7	33.2	34.9
Basin-wide Total	72.5	65.0	65.5	66.6
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis June 1, 2015	# of Sites	% Median	Last Year % Median
WEST FORK BITTERROOT	2	22%	207%
EAST SIDE BITTERROOT	3	13%	165%
WEST SIDE BITTERROOT	3	0%	229%
BITTERROOT RIVER BASIN	7	7%	192%

Lower Clark Fork River Basin



As with the other basins west of the Divide, all remaining snow from the end of April has disappeared at all but the highest elevations. Only two high elevation SNOTEL sites have measurable snow on June 1st and are well below average. A storm that hit the basin mid-month did slow down the melt a little at the higher elevations, but melt persisted through the end of the month shortly afterwards. As a whole, the snowpack in the Lower Clark Fork River basin is currently 53 percent of normal for June 1st, and 23 percent of last year at this time.

May brought a storm mid-month and a stormier pattern towards the end of the month. However, this did not bring the percentages close to average for the month. May is typically a wet month for the mountains in this region. Unfortunately, this May did not follow that pattern. Basin wide-mountain precipitation was only 52 percent of average for May, but valley stations within the basin fared much better and ended the month with 92 percent of average. Basin-wide May precipitation was 62 percent of average. Water year-to-date basin-wide precipitation is currently 95 percent of average for June 1st, and 93 percent of last year at this time.

Reservoir storage in Noxon Reservoir is 100 percent of average and 99 percent of last year.

Summer and Fall flows look to be well below average for the time period this year. A return to a cooler and wet weather pattern could help to sustain flows, but the snowmelt component to the flows will be below average. The basin-wide average June-July streamflow forecast for the Lower Clark Fork River basin is currently 57 percent of average and 41 percent of last year.

Lower Clark Fork River Basin Streamflow Forecasts - June 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

LOWER CLARK FORK RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Clark Fork R bl Missoula	JUN-JUL	370	525	635	53%	745	900	1200
	JUN-SEP	450	630	755	51%	880	1060	1470
Clark Fork R at St. Regis ¹	JUN-JUL	395	700	835	55%	975	1280	1530
	JUN-SEP	505	850	1010	54%	1160	1510	1880
Clark Fork R nr Plains ^{1,2}	JUN-JUL	1620	2320	2640	58%	2950	3650	4540
	JUN-SEP	1990	2830	3210	59%	3590	4420	5410
Thompson nr Thompson Falls	JUN-JUL	26	37	44	63%	51	62	70
	JUN-SEP	41	54	62	67%	71	84	93
Prospect Ck at Thompson Falls	JUN-JUL	12	15.8	18.4	53%	21	25	35
	JUN-SEP	17.7	22	25	58%	27	32	43
Clark Fork R at Whitehorse Rapids ^{1,2}	JUN-JUL	1880	2630	2970	59%	3310	4060	5070
	JUN-SEP	2350	3240	3640	60%	4050	4940	6090

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

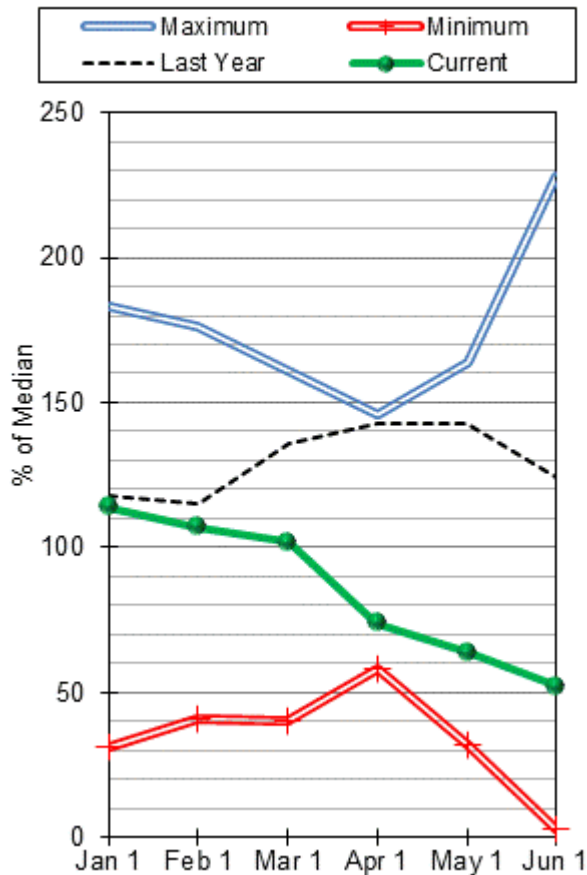
3) Median value used in place of average

Reservoir Storage End of May, 2015		Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Noxon Rapids Reservoir		324.4	328.7	324.2	335.0
Basin-wide Total		324.4	328.7	324.2	335.0
# of reservoirs		1	1	1	1

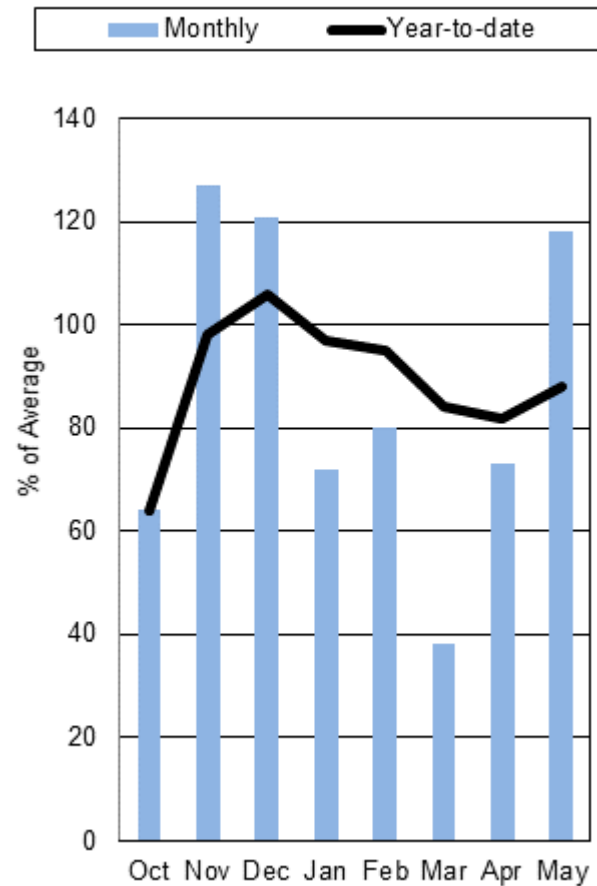
Watershed Snowpack Analysis June 1, 2015		# of Sites	% Median	Last Year % Median
LOWER CLARK FORK RIVER BASIN		7	53%	230%

Jefferson River Basin

Mountain Snowpack



Precipitation



After a decent start to winter the Jefferson took a turn for the worse after December and never fully recovered before melt began this water year. Active melt began in the basin starting in mid-March at lower elevations, and most elevations made the transition to melt during the latter half of April. The return to a cooler and wet weather pattern during the second week in May did slow the melt at elevations where snowpack remained, but it did not stop the melt that had begun. As of June 1st 11 of the 19 SNOTEL sites in the Jefferson River basin had melted out, leaving only 24 percent of the peak snowpack remaining left to enter the river systems. Currently, higher elevations which received abundant early season moisture still have snowpack remaining, but snowpack is well below normal for what we typically have at this time. As a whole, the Jefferson River basin is currently 52 percent of normal for June 1st, and 42 percent of last year at this time.

Fortunately, May brought much needed precipitation after four continuous months of below average precipitation. Valley weather stations received 164 percent of monthly average precipitation for May, while mountain SNOTEL sites received 115 percent. Currently on June 1st, the Jefferson River Basin is 88 percent of the water year-to-date average, and 85 percent of last year at this time.

Clark Canyon Reservoir is currently at 86 percent of average, Lima Reservoir is 104 percent of average, and Ruby Reservoir is currently at 101 percent of average. Basin-wide reservoir storage is at 93 percent of average and 113 percent of last year of last year at this time.

Streamflows during the March to end of May time period have been above average, indicating that the snow water entered the system early. Streamflows have been on the rise since the second week of May due to the snowmelt and precipitation during the month. Streamflow forecasts for the Jun-July time period and Jun-Sept time period are forecasted to be well below average. The basin-wide average June-July streamflow forecast for the Jefferson River is currently at 54 percent of average, and 57 percent of last year.

Jefferson River Basin Streamflow Forecasts - June 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

JEFFERSON RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Lima Reservoir Inflow ²	JUN-JUL	0.58	3.2	6.1	20%	11.6	19.8	31
	JUN-SEP	1	3.3	6.8	17%	13.9	24	39
Clark Canyon Inflow ²	JUN-JUL	-36	-9.7	8.2	23%	26	52	35
	JUN-SEP	-26	3.6	24	44%	44	74	55
Beaverhead R at Barretts ²	JUN-JUL	-42	-3.8	22	45%	48	86	49
	JUN-SEP	-38	11.6	45	60%	78	128	75
Ruby R Reservoir Inflow ²	JUN-JUL	6.1	15	21	51%	27	36	41
	JUN-SEP	14.5	25	32	57%	40	50	56
Big Hole R at Wisdom	JUN-JUL	1	10.1	25	54%	41	63	46
	JUN-SEP	1	12.4	30	58%	48	74	52
Big Hole R nr Melrose	JUN-JUL	75	142	187	69%	230	300	270
	JUN-SEP	91	172	225	71%	280	365	315
Jefferson R nr Twin Bridges ²	JUN-JUL	-4.2	101	173	54%	245	350	320
	JUN-SEP	-10.1	124	215	61%	305	440	355
Boulder R nr Boulder	JUN-JUL	13.5	20	25	78%	30	36	32
	JUN-SEP	9.6	18.8	25	68%	31	40	37
Willow Ck Reservoir Inflow ²	JUN-JUL	1.8	4.9	7	67%	9.1	12.2	10.4
	JUN-SEP	1.4	5.6	8.5	68%	11.4	15.6	12.5
Jefferson R nr Three Forks ²	JUN-JUL	-17	88	166	47%	245	360	355
	JUN-SEP	-35	99	194	47%	290	430	415

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

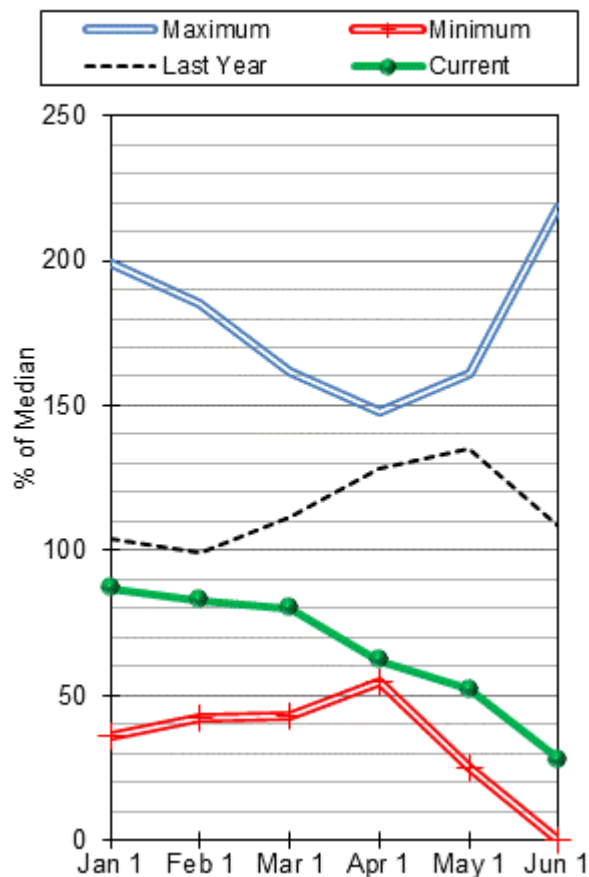
3) Median value used in place of average

Reservoir Storage End of May, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lima Reservoir	63.7	51.6	61.4	84.0
Clark Canyon Res	117.6	104.6	137.1	255.6
Ruby River Reservoir	37.6	37.6	37.1	38.8
Basin-wide Total	218.9	193.9	235.6	378.4
# of reservoirs	3	3	3	3

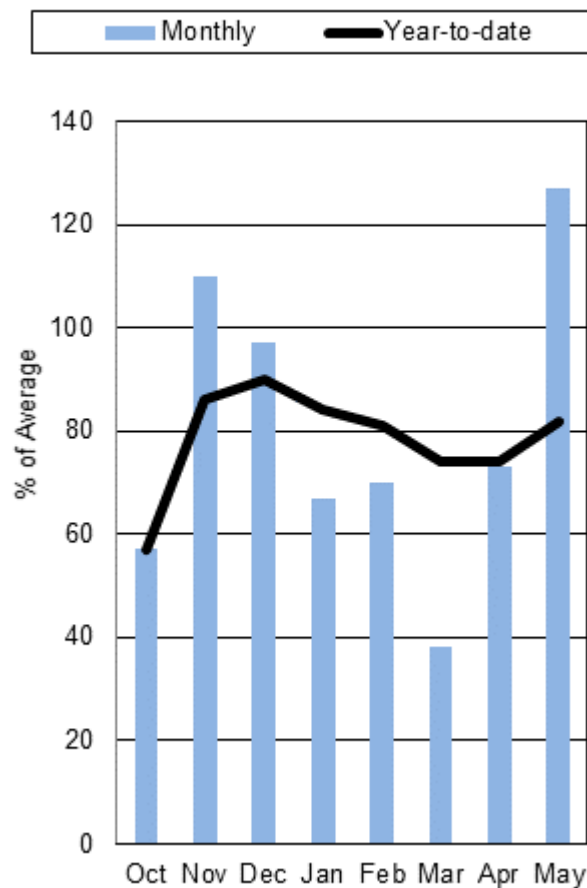
Watershed Snowpack Analysis June 1, 2015	# of Sites	% Median	Last Year % Median
BEAVERHEAD	8	59%	105%
RUBY	5	55%	110%
BIGHOLE	8	55%	139%
BOULDER	3	39%	139%
JEFFERSON RIVER BASIN	19	52%	124%

Madison River Basin

Mountain Snowpack



Precipitation



It finally became apparent in May that the snowpack in the Madison River basin would make no recovery from the well below normal conditions it has experienced all winter. On June 1st 6 of the 11 SNOTEL sites in the basin are melted out, and active melt is occurring at all sites. The more favorable cool and wet weather pattern came too late this year in the Madison River basin, but the change in weather did help to slow melt and conserve snowpack at higher elevations where snowpack persisted. Currently on June 1st the snowpack in basin is 28 percent of normal, and 26 percent of last year at this time.

After five straight months of below average precipitation the Madison River basin finally saw a return to more normal conditions, and received above average precipitation during the month. Valley weather stations received 152 percent of the average precipitation for May while mountain stations received 123 percent of average. Currently the Madison River basin is 82 percent of the water year-to-date average and 76 percent of last year at this time.

Basin-wide reservoir storage is at 111 percent of average and 114 percent of last year of last year at this time.

Snowpack driven streamflows are expected to be well below average for the June-July time period due to the well below normal snowpack this winter, and at this time. Streamflows during the last month have seen snowmelt contribution and runoff from precipitation during the month and are near average for this date. This is not expected to persist unless substantial precipitation falls throughout the summer. The basin-wide average June-July streamflow forecast for the Madison River is currently at 45 percent of average and 50 of last year.

Madison River Basin Streamflow Forecasts - June 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

MADISON RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Hebgen Reservoir Inflow ²	JUN-JUL	36	62	79	44%	96	122	178
	JUN-SEP	95	126	147	53%	168	199	280
Ennis Reservoir Inflow ²	JUN-JUL	82	122	149	45%	176	215	330
	JUN-SEP	169	220	255	53%	285	335	485

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

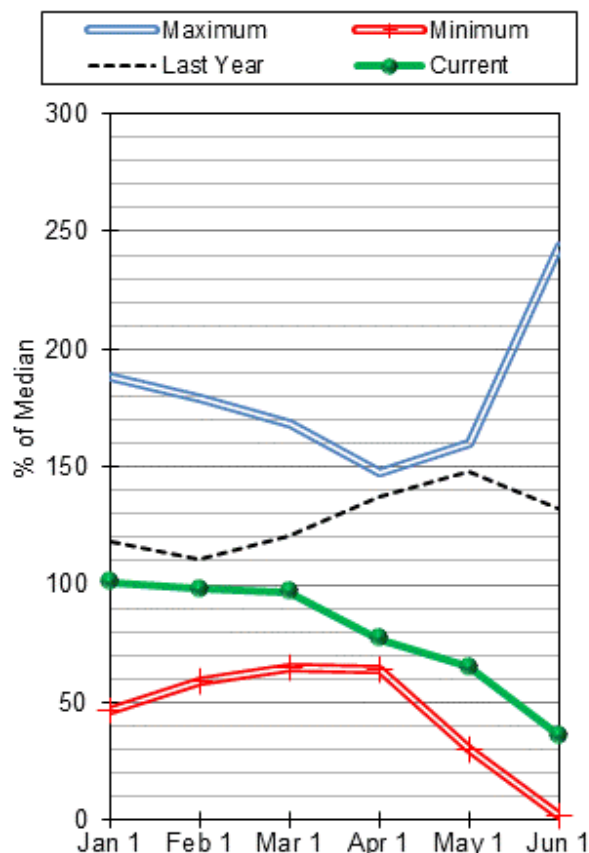
3) Median value used in place of average

Reservoir Storage End of May, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Ennis Lake	36.9	32.9	35.6	41.0
Hebgen Lake	377.4	326.7	336.2	377.5
Basin-wide Total	414.4	359.5	371.8	418.5
# of reservoirs	2	2	2	2

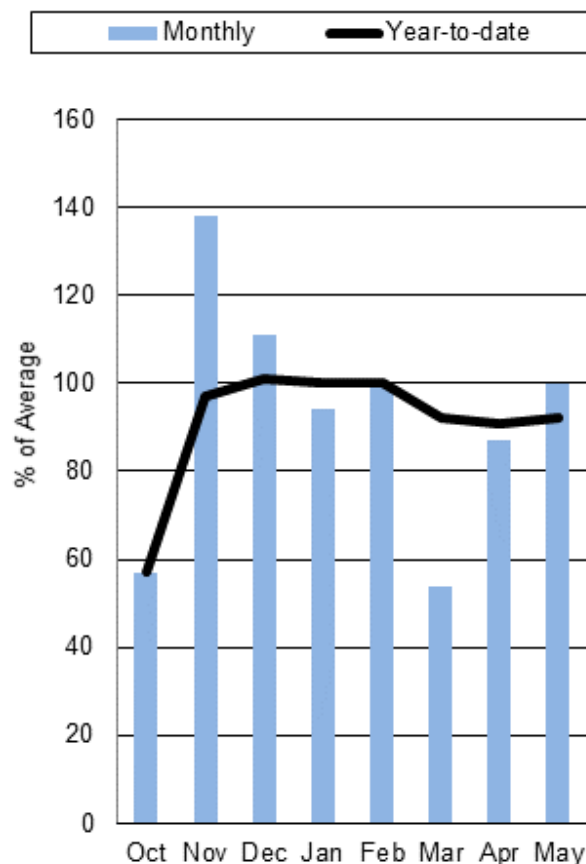
Watershed Snowpack Analysis June 1, 2015	# of Sites	% Median	Last Year % Median
MADISON abv HEBGEN LAKE	4	3%	110%
MADISON blw HEBGEN LAKE	7	38%	108%
MADISON RIVER BASIN	11	28%	108%

Gallatin River Basin

Mountain Snowpack



Precipitation



Snowpack in the Gallatin River basin reached peak snow water equivalent during the middle to late part of April and began melting shortly afterwards. A return to a more seasonal weather pattern during the middle of May did slow the melt at higher elevations, and even added some snow water to the melting snowpack. However, after unseasonably warm temperatures primed the snowpack for melt during March and April the snowpack continued the decline through the end of May. As of June 1st, 5 of the 7 SNOTEL sites in the basin have melted out and only high elevation sites continue to have snowpack. In relation to the peak snow water equivalent this year in the basin only 18 percent of the snowpack remains, and much of the snow water at SNOTEL elevations has entered the system. As of June 1st, the Gallatin River basin is currently 36 percent of normal for June 1st, and 27 percent of last year at this time.

Unlike the last few months, the Gallatin experienced near normal precipitation for the month of May. Valley weather stations received 115 percent of average precipitation during the month, while mountain locations received 97 percent. While this did help to bring the water year-to-date percentages up, the basin is still below average. Currently the Gallatin River basin is 92 percent of the water year-to-date average and 81 percent of last year at this time.

Middle Creek Reservoir is currently 118 percent of average and 128 percent of last year at this time.

Streamflows have been on the rise during the month of May due to the combination of snowmelt and precipitation during the month of May. On June 1st streamflows are near normal, but have been above normal for accumulated volume for the March 1st – June 1st time period. This indicates that snowmelt is occurring earlier than normal, and streamflows will be below average later during the summer period unless significant precipitation occurs. Basin-wide streamflow forecasts as of June 1st are well below average at 54 percent for the June-July period and 51 percent of last year.

Gallatin River Basin Streamflow Forecasts - June 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

GALLATIN RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Gallatin River Gateway	JUN-JUL	82	117	140	55%	163	198	255
	JUN-SEP	118	160	189	59%	220	260	320
Hyalite Reservoir Inflow ²	JUN-JUL	8.5	10	11	85%	12	13.4	12.9
	JUN-SEP	10.3	12.2	13.5	86%	14.7	16.6	15.7
Gallatin River at Logan	JUN-JUL	35	88	124	51%	160	215	245
	JUN-SEP	53	123	170	55%	215	285	310

1) 90% and 10% exceedance probabilities are actually 95% and 5%

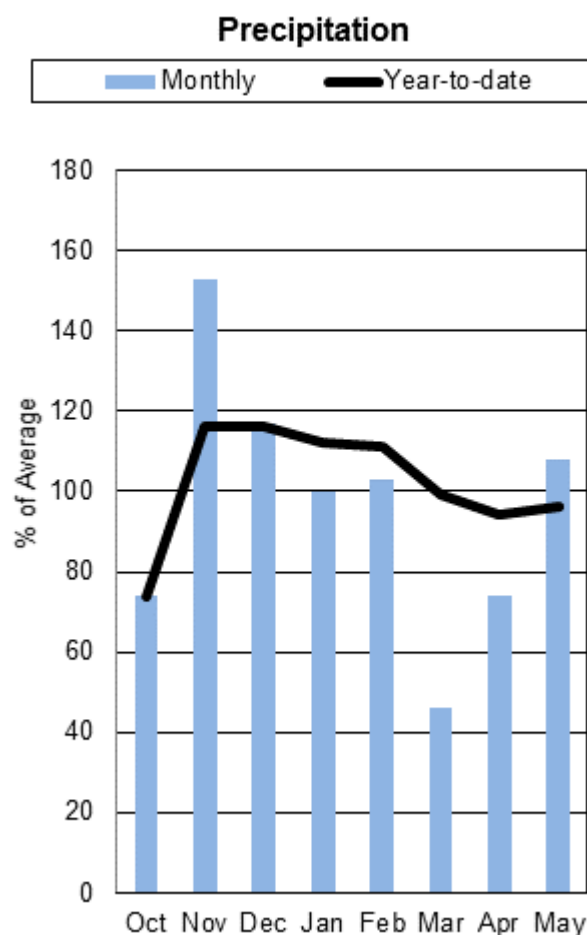
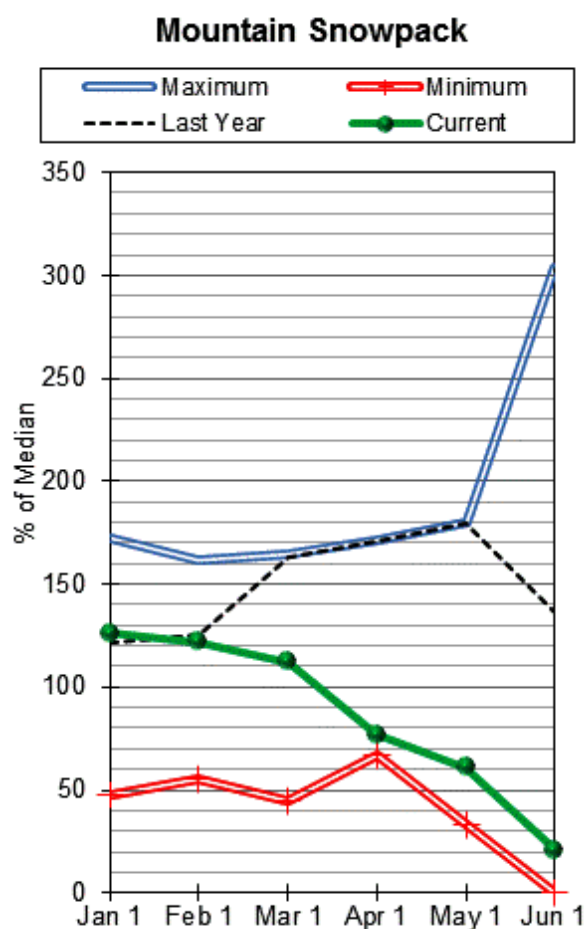
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of May, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Middle Creek Res	10.1	7.9	8.6	10.2
Basin-wide Total	10.1	7.9	8.6	10.2
# of reservoirs	1	1	1	1

Watershed Snowpack Analysis June 1, 2015	# of Sites	% Median	Last Year % Median
UPPER GALLATIN	3	24%	111%
HYALITE	2	68%	149%
BRIDGER	2	0%	290%
GALLATIN RIVER BASIN	7	36%	132%

Missouri Headwaters Mainstem River Basin



In the early months of winter it looked like the Missouri Headwaters Mainstem basin below Totston, MT would have a decent runoff year from snowpack. Unfortunately, the lower elevation nature of the basin, lack of significant snowfall this spring, and above average temperatures resulted in significant declining percentage of normal snowpack after January 1st. This can be attributed to the significant melt experienced at low elevations in March, and transition of the remaining snowpack to melt in mid to late April. Currently, 3 of the 5 SNOTEL sites in the basin have melted out leaving only the highest of elevations with measureable snow on June 1st. The early melt and below normal peak snowpack will result in below average snowmelt contribution later this runoff season. Currently the basin-wide snowpack is 21 percent of normal for June 1st, and 15 percent of last year at this time.

The basin did receive near average precipitation during the month of May with valley weather stations receiving 98 percent of monthly average precipitation, and mountain SNOTEL sites receiving 99 percent. Currently on June 1st, the Missouri Headwaters Mainstem River basin is 96 percent of the water year-to-date average, and 86 percent of last year at this time.

Basin-wide reservoir storage is currently 115 percent of average for June 1st, and 112 percent of last year at this time.

Streamflow prospects for the June-July time period reflect well below normal snowpack in the basin, and early melt experienced so far. River basins feeding the mainstem of the Missouri River are similar in this regard and will produce below average streamflows. The basin-wide average June-July streamflow forecast on June 1st for the Missouri Mainstem River is currently at 48 percent of average and 41 percent of last year.

Missouri Mainstem Basin

Streamflow Forecasts - June 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

MISSOURI MAINSTEM BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Missouri R at Toston ²	JUN-JUL	23	240	390	41%	540	760	940
	JUN-SEP	65	365	570	47%	775	1080	1220
Dearborn R nr Craig	JUN-JUL	1	10.3	20	50%	30	44	40
	JUN-SEP	3	13	24	52%	35	51	46
Missouri R at Fort Benton ²	JUN-JUL	5	360	600	43%	840	1200	1410
	JUN-SEP	165	630	950	50%	1270	1740	1900
Missouri R nr Virgelle ²	JUN-JUL	33	410	670	42%	930	1310	1600
	JUN-SEP	186	675	1010	48%	1340	1830	2120
Missouri R nr Landusky ²	JUN-JUL	51	430	685	40%	940	1320	1710
	JUN-SEP	220	720	1060	47%	1400	1900	2260
Missouri R bl Fort Peck Dam ²	JUN-JUL	230	350	580	34%	900	1370	1710
	JUN-SEP	320	500	800	37%	1260	1950	2170
Lake Sakakawea Inflow ²	JUN-JUL	1100	2250	3030	60%	3810	4960	5060
	JUN-SEP	855	2550	3710	60%	4860	6560	6150

1) 90% and 10% exceedance probabilities are actually 95% and 5%

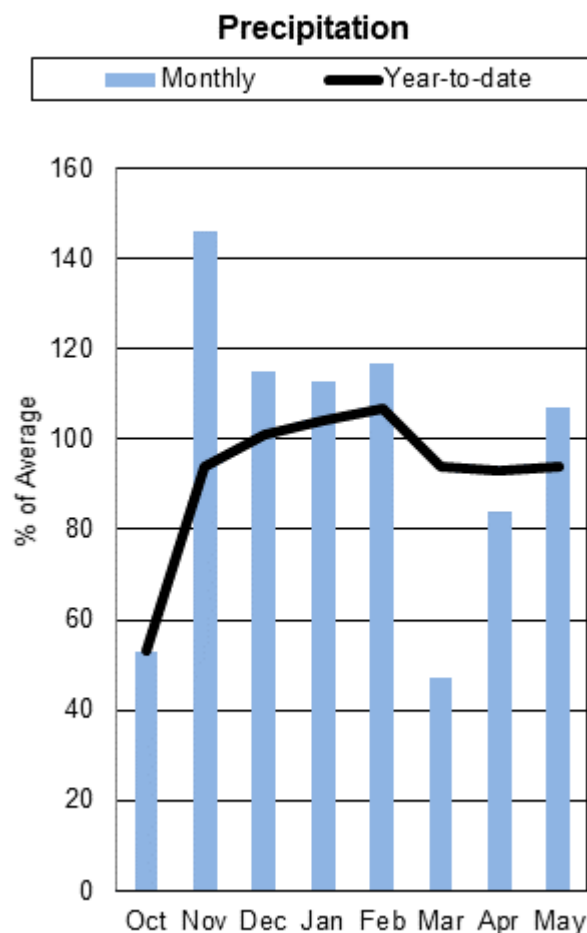
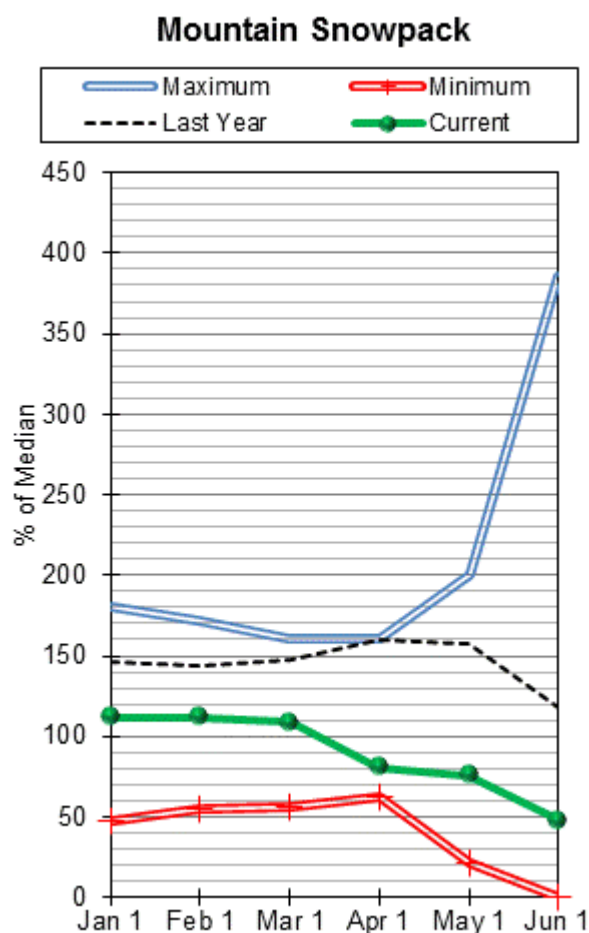
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of May, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Canyon Ferry Lake	1739.4	1519.5	1639.0	2043.0
Helena Valley Reservoir	8.7	7.7	7.9	9.2
Lake Helena	10.9	10.9	10.9	12.7
Hauser Lake & Lake Helena	74.0	74.0	73.8	74.6
Holter Lake	81.0	81.0	80.4	81.9
Fort Peck Lake	15428.1	13841.6	13383.0	18910.0
Basin-wide Total	17342.1	15534.7	15195.0	21131.4
# of reservoirs	6	6	6	6

Watershed Snowpack Analysis June 1, 2015	# of Sites	% Median	Last Year % Median
HEADWATERS MAINSTEM	5	21%	136%
SMITH-JUDITH-MUSSELSHELL	9	48%	118%
SUN-TETON-MARIAS	5	17%	189%
MAINSTEM ab FT PECK RES	18	33%	152%
MILK RIVER BASIN	3		
MISSOURI MAINSTEM BASIN	21	33%	152%

Smith-Judith-Musselshell River Basins



Looking at the precipitation totals for mountain SNOTEL sites might indicate that snowpack should be near normal at this point in the Smith-Judith-Musselshell basin, as every month since November has been near to above average. The unfortunate reality is the early melt experienced at low elevations during the month of March, and melt at most elevations during April reduced the snowpack percentages. Snowmelt continued through the month of May leaving 6 of the 9 SNOTEL sites in the basin snow-free on June 1st. The return to cooler weather mid-month did help to add some snow water at some of the sites and slow the melt, but ultimately the basin returned to active melt by the end of the month. Currently on June 1st the basin is 48 percent of normal for this time, and 41 percent of last year.

The Smith-Judith-Musselshell is the one rare basin that has seen near normal mountain precipitation throughout the winter and spring, and May was no exception. Valley weather stations received 114 percent of monthly average precipitation, while mountain SNOTEL sites received 102 percent. Currently on June 1st, the Smith-Judith-Musselshell River Basin is 94 percent of the water year-to-date average, and 89 percent of last year at this time.

Basin-wide reservoir storage is currently at 148 percent of average, and 105 percent of last year at this time.

River flows experienced in the basin so far reflect the early melt of low elevations in March and transition to active melt in April. During May streamflows have been near normal on many of the rivers and streams, and the additional rainfall has helped to keep the streamflows in the normal range. The early passing of this water will have an impact on the streams later this summer, and above average precipitation will be needed to keep flows in this range. The basin-wide average June-July streamflow forecast for the Smith-Judith-Musselshell Rivers is 52 percent of average and 44 percent of last year.

Smith-Judith-Musselshell Streamflow Forecasts - June 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

SMITH-JUDITH-MUSSEL SHELL	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Sheep Ck nr White Sulphur Springs	JUN-JUL	2.5	4.7	6.2	77%	7.7	9.9	8.1
	JUN-SEP	3.6	6.6	8.6	79%	10.6	13.6	10.9
Smith R bl Eagle Ck ²	JUN-JUL	10	18	32	59%	45	65	54
	JUN-SEP	12	24	42	65%	61	88	65
NF Musselshell R nr Delpine	JUN-JUL	0.2	0.5	1.6	80%	2.7	4.4	2
	JUN-SEP	0.4	1.42	2.4	86%	3.4	4.8	2.8
SF Musselshell R ab Martinsdale	JUN-JUL	0.5	1.97	9.6	48%	17.2	28	20
	JUN-SEP	1	4.6	12.7	55%	21	33	23
Musselshell R at Harlowton ²	JUN-JUL	-9	-2.6	15.2	54%	33	59	28
	JUN-SEP	-7	2.6	20	67%	38	65	30
Musselshell R nr Roundup ²	JUN-JUL	0	4	10.8	32%	28	53	34
	JUN-SEP	0	5	13.7	40%	31	56	34

1) 90% and 10% exceedance probabilities are actually 95% and 5%

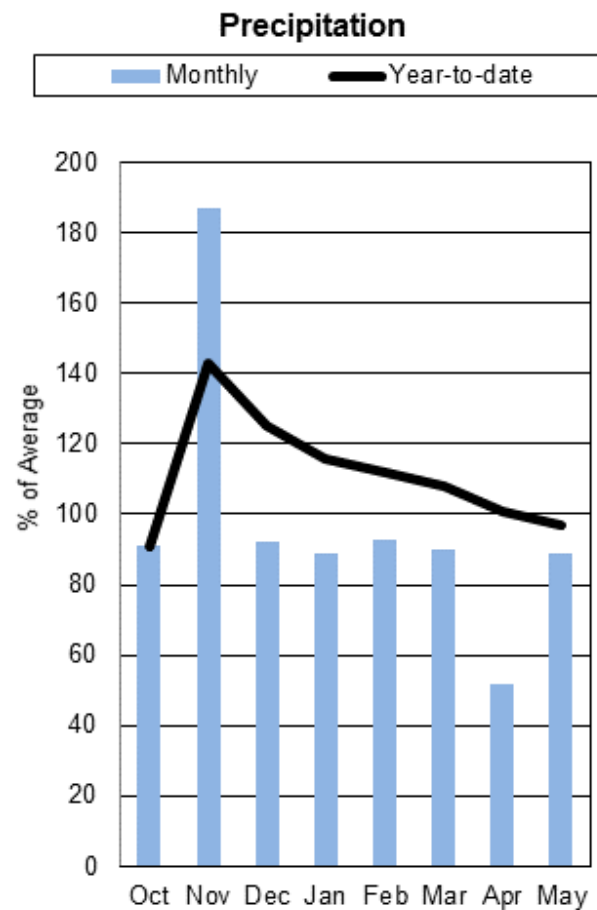
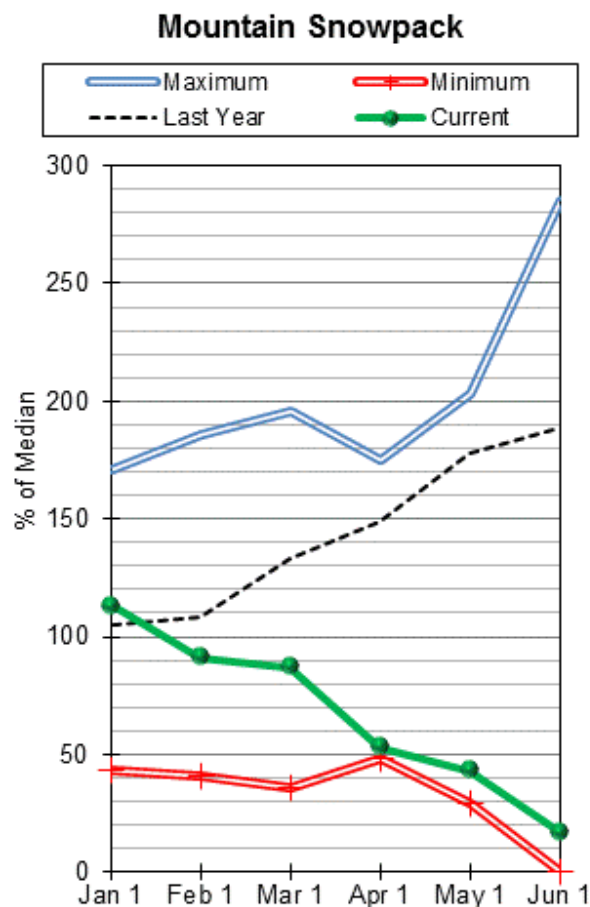
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of May, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Smith River Res	11.6	11.6	9.9	10.6
Ackley Lake	6.6	4.6	4.6	7.0
Bair Res	7.5	7.3	4.9	7.0
Martinsdale Res	23.2	19.8	15.2	23.1
Deadman's Basin Res	75.3	74.7	49.2	72.2
Basin-wide Total	124.1	117.9	83.8	119.9
# of reservoirs	5	5	5	5

Watershed Snowpack Analysis June 1, 2015	# of Sites	% Median	Last Year % Median
SMITH	6	44%	116%
HIGHWOOD	0		
JUDITH	4	85%	129%
MUSSELSHELL	2		
SMITH-JUDITH-MUSSELSHELL	9	48%	118%

Sun-Teton-Marias River Basins



Since February 1st the Sun-Teton-Marias River basin has been below normal in regards to snowpack. Low elevation SNOTEL sites made the transition to melt during the middle of March, with the Dupuyer Creek SNOTEL site setting a new record early melt-out date of March 28th. Two low to mid-elevation SNOTEL sites were able to prolong their snowpack into April, but had melted out by May 1st (Waldron SNOTEL, Wood Creek SNOTEL) Higher elevation SNOTEL sites began active melt after the middle half of April and had snowpack that persisted into May late May. Currently only one high elevation SNOTEL site (Badger Pass) has snow on June 1st. The persistently dry and abnormally warm weather pattern this winter and spring resulted in early melt in the basin, limiting the amount of snow water to enter the rivers and streams as we progress into summer. Currently on June 1st the basin is 17 percent of normal for this time, and 9 percent of last year at this time.

Valley weather stations received 102 percent of monthly average precipitation for May, while mountain SNOTEL sites received 83 percent. Currently on June 1st, the Sun-Teton-Marias River Basin is 97 percent of the water year-to-date average, and 96 percent of last year at this time.

Basin-wide reservoir storage is currently at 111 percent of average, and 110 percent of last year at this time.

Streamflows in through the months of March and April were in the above normal to well above normal range in the basin, indicating the early passage of snow water through the systems. The well below normal snowpack on June 1st indicates that streamflow during the June-July time period could be well below average. The basin-wide average June-July streamflow forecast for the Sun-Teton-Marias Rivers on June 1st is currently 44 percent of average and 29 percent of last year.

Sun-Teton-Marias Streamflow Forecasts - June 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

SUN-TETON-MARIAS	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Gibson Reservoir Inflow	JUN-JUL	68	100	122	58%	144	176	210
	JUN-SEP	105	140	163	65%	186	220	250
Two Medicine R nr Browning ²	JUN-JUL	19.9	34	43	52%	52	66	82
	JUN-SEP	22	37	48	51%	59	74	94
Badger Ck nr Browning	JUN-JUL	1.41	11.4	18.2	40%	25	35	46
	JUN-SEP	9	21	29	48%	37	49	61
Swift Reservoir Inflow ²	JUN-JUL	4.3	10.4	14.5	48%	18.6	25	30
	JUN-SEP	10.7	18.4	24	59%	29	37	41
Dupuyer Ck nr Valier	JUN-JUL	0.4	0.8	1.1	20%	4.2	8.6	5.4
	JUN-SEP	0.8	1.6	2.1	30%	5.7	11.1	6.9
Cut Bank Ck nr Browning	JUN-JUL	7.8	15.6	21	55%	26	34	38
	JUN-SEP	10.5	19.1	25	57%	31	39	44
Marias R nr Shelby ²	JUN-JUL	-30	-5	24	17%	68	134	143
	JUN-SEP	-30	-5	25	16%	76	150	158
Teton R nr Dutton	JUN-JUL	0.8	3.2	8	33%	21	39	24
	JUN-SEP	1	5.1	12.8	44%	28	50	29

1) 90% and 10% exceedance probabilities are actually 95% and 5%

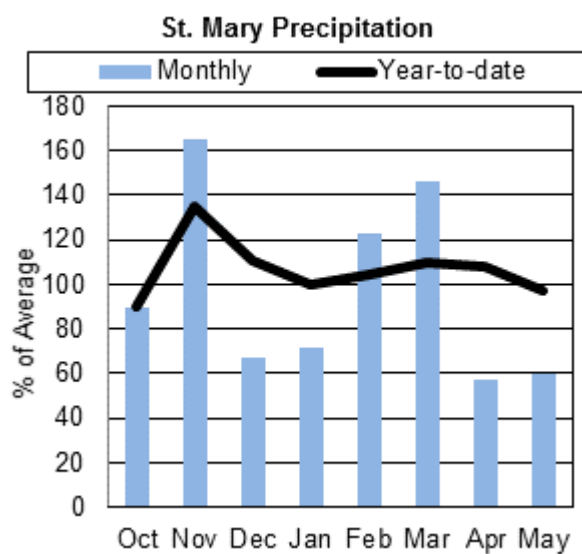
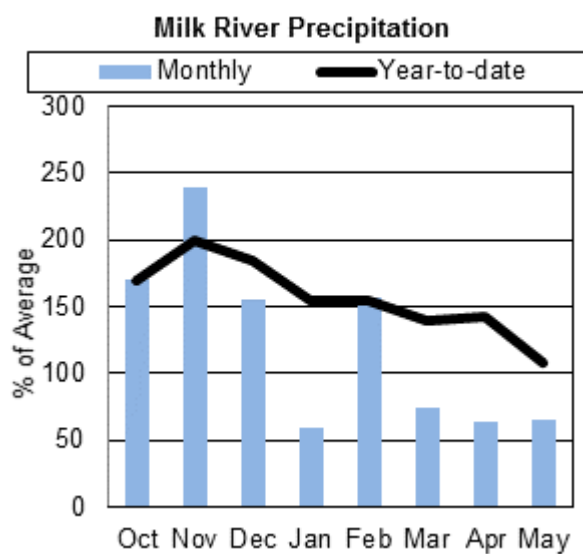
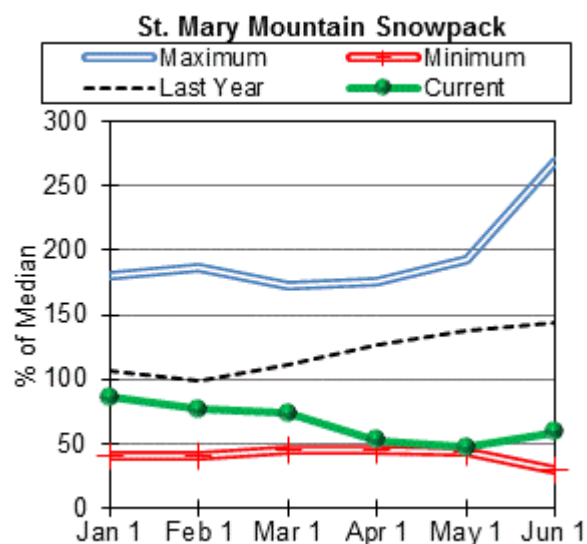
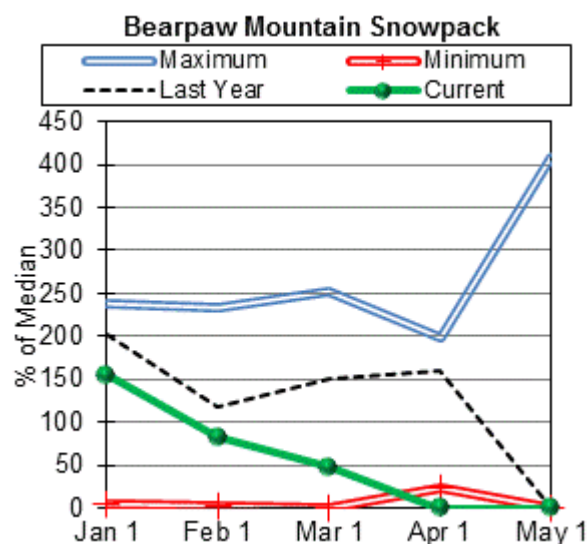
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of May, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Gibson Res	98.5	82.4	89.8	99.1
Pishkun Res	30.4	30.0	29.8	32.0
Willow Creek Res - Augusta	31.5	30.0	28.3	32.2
Lower Two Medicine Lake	12.5	12.6	12.0	11.9
Four Horns Lake	12.5	11.2	11.6	19.2
Swift Res	24.8	12.0	23.1	30.0
Lake Frances	83.9	75.6	73.9	112.0
Lake Elwell (Tiber)	881.6	823.0	796.1	1347.0
Nilan Reservoir	11.0	10.7	8.5	0.0
Basin-wide Total	1186.5	1087.5	1073.1	1683.4
# of reservoirs	9	9	9	9

Watershed Snowpack Analysis June 1, 2015	# of Sites	% Median	Last Year % Median
SUN	2	0%	287%
TETON	3	0%	287%
MARIAS	2	21%	164%
SUN-TETON-MARIAS	5	17%	189%

St. Mary and Milk River Basins



Like its southerly neighbor the Sun-Teton-Marias, the St. Mary-Milk River basin has been below normal in terms on snowpack all water year. Low elevation sites in Glacier National Park (Many Glacier SNOTEL) and in the Bearpaw Mountains (Rocky Boy SNOTEL) were snow free by the end of March due to the melt experienced from above normal temperatures this winter. The higher elevation site in the basin (Flattop Mountain SNOTEL 6300') still has 48 percent of peak snow water left to melt. The Flattop Mountain site made the transition to melt during mid-April and has been in active melt since mid-May. The loss of the lower elevation snowpack and below normal peak accumulation will result in below average snowmelt contribution to streamflows this summer. Currently on June 1st the basin is 59 percent of normal for this time, and 41 percent of last year at this time.

Valley weather stations received 65 percent of monthly average precipitation for May, while mountain SNOTEL sites received 55 percent. Currently on June 1st, the Saint-Mary-Milk River Basin is 97 percent of the water year-to-date average, and 101 percent of last year at this time.

Basin-wide reservoir storage is currently at 128 percent of average, and 125 percent of last year at this time.

Early snowmelt and below normal peak snow accumulation this year should result in below average streamflows this summer. The basin-wide average June-July streamflow forecast for the Saint Mary-Milk River is currently at 55 percent of average and 36 percent of last year.

St. Mary & Milk Basins

Streamflow Forecasts - June 1, 2015

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

ST. MARY & MILK BASINS	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Lake Sherburne Inflow	JUN-JUL	17.1	25	30	54%	35	43	56
	JUN-SEP	29	37	44	62%	50	59	71
St. Mary R nr Babb ²	JUN-JUL	81	112	132	56%	152	183	235
	JUN-SEP	114	148	171	58%	195	230	295
St. Mary R at Intl Boundary ²	JUN-JUL	78	120	148	54%	176	220	275
	JUN-SEP	114	161	192	56%	225	270	345
Milk R at Western Crossing of Intl Bndry, AB	JUN-JUL	0.1	1.8	4.5	71%	12.5	24	6.3
	JUN-SEP	0.2	2.2	5.7	80%	14.8	28	7.1
Milk R at Eastern Crossing of Intl Bndry								

1) 90% and 10% exceedance probabilities are actually 95% and 5%

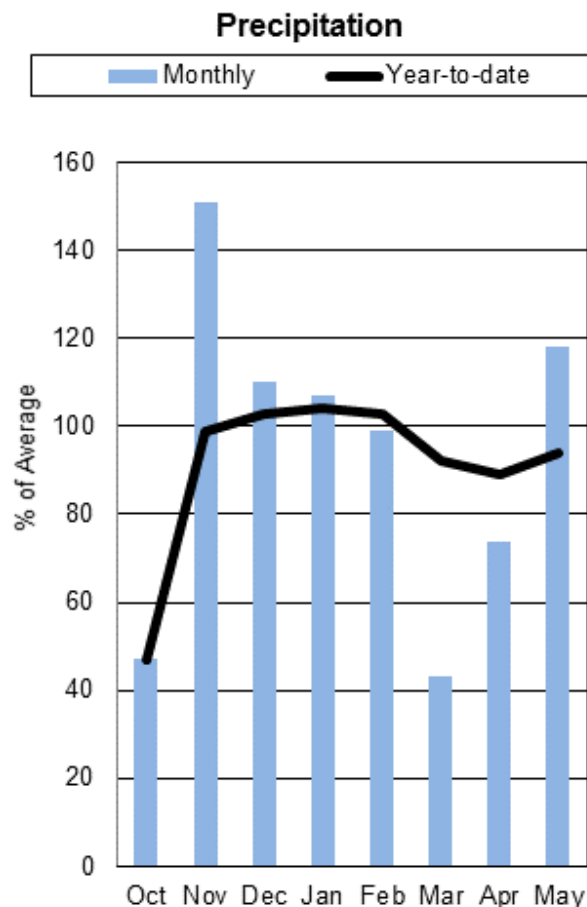
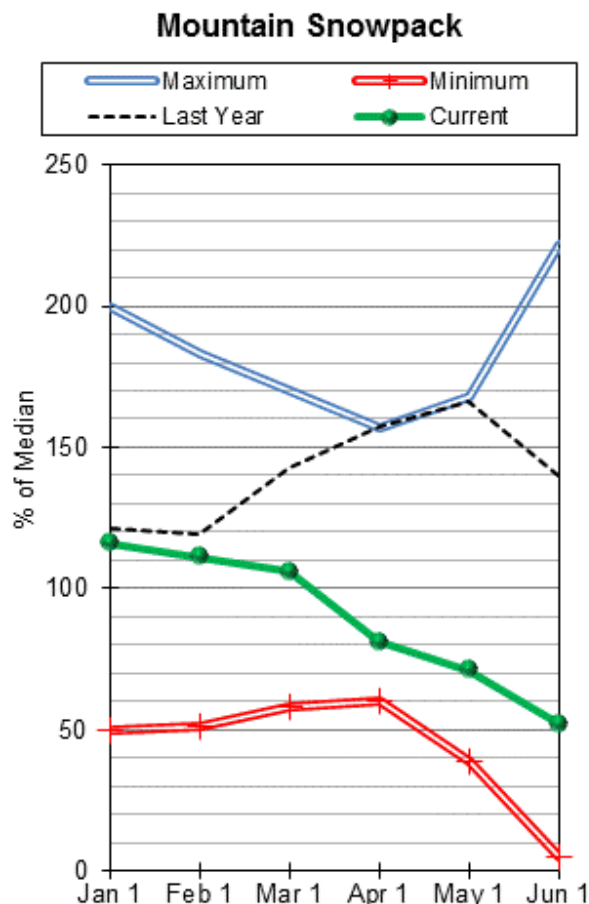
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of May, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lake Sherburne	50.2	47.1	31.8	64.3
Fresno Res	76.5	78.1	71.9	127.0
Nelson Res	56.5	56.0	40.0	66.8
Basin-wide Total	183.2	181.2	143.7	258.1
# of reservoirs	3	3	3	3

Watershed Snowpack Analysis June 1, 2015	# of Sites	% Median	Last Year % Median
ST. MARY	2	59%	144%
BEARPAW MOUNTAINS	3		
CYPRESS HILLS, CANADA	0		
MILK RIVER BASIN	3		
ST. MARY & MILK BASINS	5	59%	144%

Upper Yellowstone River Basin



As this year's abundantly warm and dry April weather transitioned into May in the Upper Yellowstone River basin, it appeared that all snow would melt early and the basin would have new record low snowpack numbers. On May 5th, the basin wide snow water equivalent was 58 percent of average and 1.8 inches away from the lowest number on record. Fortunately, cooler weather arrived and several snow storms graced the region on May 8th, which helped sustain the snowpack through mid-month. The last week of the month dealt the basin its most significant loss of the season with average of 0.4 inches of snow water per day. Much of this loss can be attributed to significant rain which fell at all elevations. The Upper Yellowstone River basin is currently at 52 percent of normal snowpack for June 1st, and 37 percent of last year at this time.

Valley weather stations received 153 percent of monthly average precipitation for May, while mountain SNOTEL sites received 104 percent. Overall, the basin received 118 percent of its monthly average. Currently on June 1st, the Upper Yellowstone River basin is at 94 percent of the water year-to-date average and 77 percent of last year at this time.

Basin-wide reservoir storage is currently at 111 percent of average, and 108 percent of last year at this time.

Overall, the Upper Yellowstone River basin saw its largest deviation from normal with above normal streamflows following the melt that occurred during the warm and sunny weather at the end of April. After around May 10th most streamflows in the basin was near normal. Compared to many basins in the state the Upper Yellowstone has more high elevation left to melt, but like many other basins has experienced significant losses of SWE at mid to low elevations. This early movement of water likely result in below average streamflows later in the runoff season. Basin-wide average June-July streamflow forecast for the Upper Yellowstone River is currently 68 percent of average and 50 percent of last year.

Upper Yellowstone River Basin Streamflow Forecasts - June 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

UPPER YELLOWSTONE RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Yellowstone R at Yellowstone Lake Outlet	JUN-JUL	153	199	230	49%	260	305	465
	JUN-SEP	210	275	320	49%	365	430	655
Yellowstone R at Corwin Springs	JUN-JUL	450	570	655	63%	740	860	1040
	JUN-SEP	580	745	855	64%	965	1130	1330
Yellowstone R at Livingston	JUN-JUL	505	650	755	64%	855	1000	1180
	JUN-SEP	665	860	990	65%	1120	1320	1520
Shields R nr Livingston	JUN-JUL	2	10.4	31	50%	52	82	62
	JUN-SEP	4	14.5	39	51%	64	100	76
Boulder R at Big Timber	JUN-JUL	102	129	148	74%	167	194	200
	JUN-SEP	106	140	163	72%	186	220	225
Mystic Lake Inflow ²	JUN-JUL	33	37	40	85%	43	48	47
	JUN-SEP	44	50	55	87%	59	66	63
Stillwater R nr Absarokee ²	JUN-JUL	230	265	295	91%	320	355	325
	JUN-SEP	275	330	365	91%	400	455	400
Clarks Fk Yellowstone R nr Belfry	JUN-JUL	235	275	300	86%	325	365	350
	JUN-SEP	245	295	330	84%	360	410	395
Cooney Reservoir Inflow	JUN-JUL	9.7	16.2	21	95%	25	32	22
	JUN-SEP	17	25	30	97%	36	44	31
Yellowstone R at Billings	JUN-JUL	975	1320	1550	71%	1780	2120	2170
	JUN-SEP	1130	1590	1900	71%	2220	2680	2660

1) 90% and 10% exceedance probabilities are actually 95% and 5%

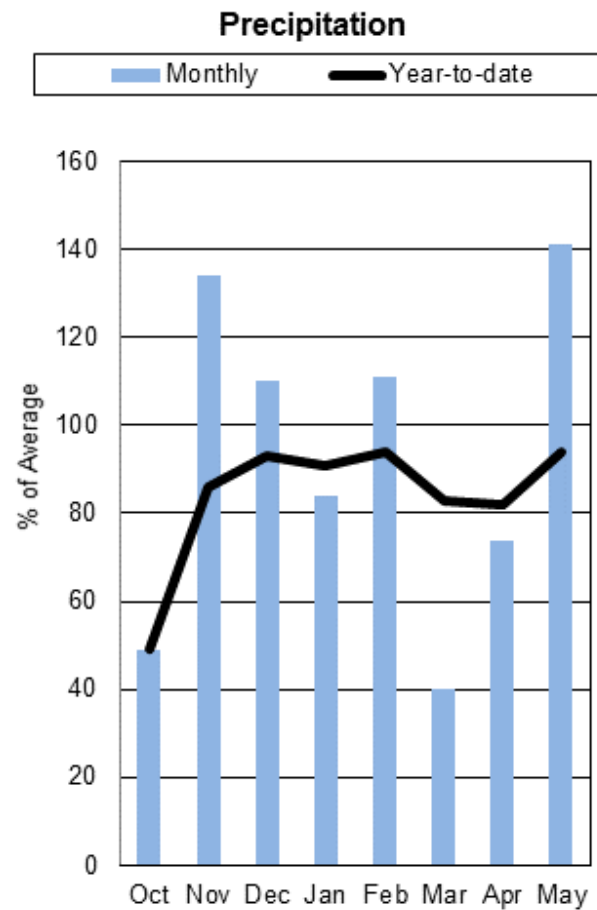
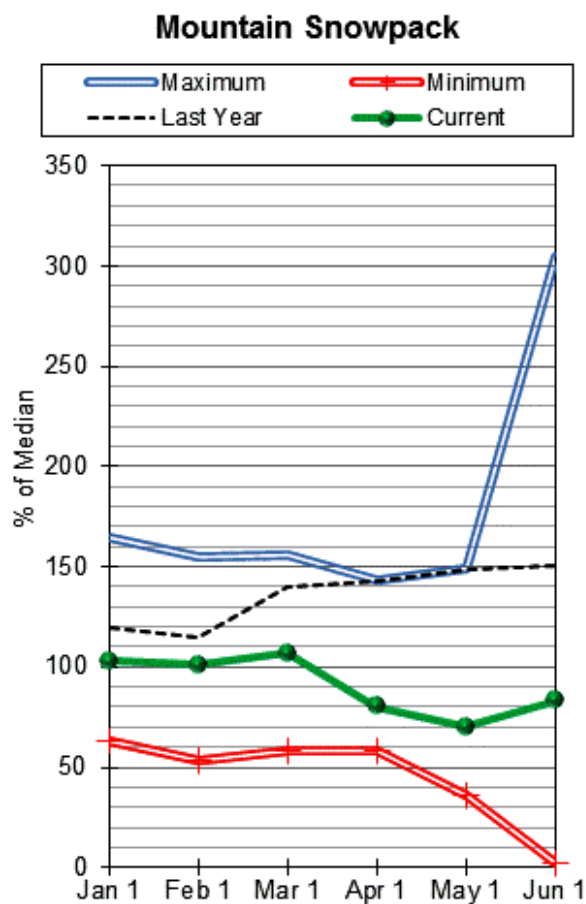
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of May, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Mystic Lake	4.2	7.8	5.8	21.0
Cooney Res	28.5	22.6	23.7	27.4
Basin-wide Total	32.7	30.4	29.5	48.4
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis June 1, 2015	# of Sites	% Median	Last Year % Median
YELLOWSTONE ab LIVINGSTON	9	55%	136%
SHIELDS	4	0%	162%
BOULDER-STILLWATER	3	48%	116%
RED LODGE-ROCK CREEK	2	130%	183%
CLARK'S FORK	7	58%	147%
UPPER YELLOWSTONE RIVER BASIN	22	52%	140%

Lower Yellowstone River Basin



After having reached its lowest basin wide snowpack numbers on record in mid-April the Lower Yellowstone River basin had a substantial comeback over the month. On May 7th, after losing 3.3 inches of basin wide snow water over 10 days, a storm arrived that favored the region adding 0.8 inches of snow water equivalent. Mid to late month the basin saw below average melt and another major snow storm that blanketed Wyoming. On May 23rd, Cloud Peak Reservoir SNOTEL (Elev. 9860) received a storm that dropped 20 inches of snow depth. While a significant spring event, the snowpack in the basin peaked this year well below normal and will provide below average snowmelt runoff this summer. Overall, the Lower Yellowstone River basin is currently at 83 percent of normal snowpack and 54 percent of last year at this time.

Valley weather stations received 95 percent of monthly average precipitation for May, while mountain SNOTEL sites received 166 percent. Overall, the basin received 141 percent of its monthly average. Currently on June 1st, the Upper Yellowstone River basin is 94 percent of the water year-to-date average and 82 percent of last year at this time.

Basin-wide reservoir storage is currently at 115 percent of average, and 124 percent of last year at this time.

Lower Yellowstone River basin streamflows remained normal to above normal for the majority of May, until the storm system landed in Wyoming around May 23rd. After Around May 27th a large portion of streamflows in the Bighorn and Southern Wind River Ranges reached much above normal stream flows. The early movement of snow water will translate to below average flows later this runoff season. The basin-wide average June-July streamflow forecast for the Lower Yellowstone River is currently 77 percent of average and 53 percent of last year.

Lower Yellowstone River Basin (Wyoming)

Streamflow Forecasts - June 1, 2015

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

LOWER YELLOWSTONE RIVER BASIN (Wyoming)	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Bighorn R nr St. Xavier ²	JUN-JUL	420	605	730	79%	855	1040	920
	JUN-SEP	405	645	810	80%	975	1210	1010
Little Bighorn R nr Hardin	JUN-JUL	19.9	37	49	92%	60	77	53
	JUN-SEP	26	47	60	91%	74	94	66
Tongue R nr Dayton ²	JUN-JUL	27	37	43	88%	49	59	49
	JUN-SEP	36	47	55	89%	63	74	62
Big Goose Ck nr Sheridan	JUN-JUL	21	26	30	97%	34	39	31
	JUN-SEP	26	32	36	92%	40	45	39
Little Goose Ck nr Bighorn	JUN-JUL	13.3	16.1	18	94%	19.9	23	19.1
	JUN-SEP	19.5	23	26	96%	29	32	27
Tongue River Reservoir Inflow ²	JUN-JUL	53	79	97	88%	115	142	110
	JUN-SEP	63	96	118	88%	141	174	134
Yellowstone R at Miles City ²	JUN-JUL	1520	2040	2400	75%	2750	3280	3200
	JUN-SEP	1650	2390	2900	75%	3400	4140	3870
Powder R at Moorehead	JUN-JUL	37	69	91	99%	113	145	92
	JUN-SEP	48	87	114	104%	141	180	110
Powder R nr Locate	JUN-JUL	30	72	101	100%	130	173	101
	JUN-SEP	36	90	127	104%	163	215	122
Yellowstone R nr Sidney ²	JUN-JUL	1390	2000	2420	75%	2840	3460	3240
	JUN-SEP	1380	2250	2840	74%	3430	4300	3840

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of May, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Bighorn Lake	950.2	750.5	848.0	1356.0
Tongue River Res	83.4	83.5	52.6	79.1
Basin-wide Total	1033.6	834.0	900.6	1435.1
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis June 1, 2015	# of Sites	% Median	Last Year % Median
WIND RIVER (Wyoming)	10	119%	115%
SHOSHONE RIVER (Wyoming)	4	48%	135%
BIGHORN RIVER (Wyoming)	14	54%	146%
LITTLE BIGHORN (Wyoming)	2	61%	195%
TONGUE RIVER (Wyoming)	6	85%	182%
POWDER RIVER (Wyoming)	6	231%	292%
LOWER YELLOWSTONE RIVER BASIN (Wyoming)	29	83%	153%

Montana Site Report

Site	Network	Elevation (ft)	Depth (in)	SWE (in)	Median (in)	% Median	Last Year SWE (in)	Last Year % Median
Albro Lake	SNOTEL	8300	18	9.0	12.2	74%	15.2	125%
Ambrose	SC	6480						
Arch Falls	SC	7350						
Ashley Divide	SC	4820						
Badger Pass	SNOTEL	6900	5	3.6	17.2	21%	28.2	164%
Banfield Mountain	SNOTEL	5600	0	0.0	0.0		1.2	
Baree Creek	SC	5500						
Baree Midway	SC	4600						
Baree Trail	SC	3800						
Barker Lakes	SNOTEL	8250	17	6.7	11.0	61%	13.9	126%
Basin Creek	SNOTEL	7180	0	0.0	0.3	0%	0.0	0%
Bassoo Peak	SC	5150						
Beagle Springs	SNOTEL	8850	0	0.0	0.0		0.0	
Bear Basin	SC	8150						
Bear Mountain	SNOTEL	5400	0	0.0	26.7	0%	42.6	160%
Beartooth Lake	SNOTEL	9360	41	15.5	17.1	91%	27.3	160%
Beaver Creek	SNOTEL	7850	0	0.0	6.4	0%	8.3	130%
Big Snowy	SC	7150						
Bisson Creek	SNOTEL	4920	0	0.0	0.0		0.0	
Black Bear	SNOTEL	8170	5	1.0	24.5	4%	27.9	114%
Black Mountain	SC	7750						
Black Pine	SNOTEL	7210	0	0.0	0.0		0.0	
Blacktail	SC	5650						
Blacktail Mtn	SNOTEL	5650	0	0.0			0.0	
Bloody Dick	SNOTEL	7600	0	0.0	0.0		0.0	
Bots Sots	SC	7750						
Boulder Mountain	SNOTEL	7950	6	0.4	9.1	4%	9.5	104%
Box Canyon	SNOTEL	6670	0	0.0	0.0		0.0	
Boxelder Creek	SC	5100	0	0.0	0.0		0.0	
Brackett Creek	SNOTEL	7320	0	0.0	3.1	0%	9.0	290%
Bristow Creek	SC	3900						
Brush Creek Timber	SC	5000						
Bull Mountain	SC	6600						
Burnt Mtn	SNOTEL	5880	0	0.0	0.0		0.0	
Cabin Creek	SC	5200						
Calvert Creek	SNOTEL	6430	0	0.0	0.0		0.0	
Camp Senia	SC	7890						
Canyon	SNOTEL	7870	0	0.0	0.0		0.0	
Carrot Basin	SNOTEL	9000	21	8.9	22.6	39%	19.3	85%
Chessman Reservoir	SC	6200						
Chicago Ridge	SC	5800						
Chicken Creek	SC	4060	0	0.0	0.0		0.0	
Clover Meadow	SNOTEL	8600	12	5.1	10.4	49%	8.5	82%
Cole Creek	SNOTEL	7850	25	12.0	9.2	130%	16.8	183%
Combination	SNOTEL	5600	0	0.0	0.0		0.0	
Copper Bottom	SNOTEL	5200	0	0.0			0.0	
Copper Camp	SNOTEL	6950	0	0.0			20.2	
Copper Mountain	SC	7700						
Cottonwood Creek	SC	6400						
Coyote Hill	SC	4200						
Crevice Mountain	SC	8400						
Crystal Lake	SNOTEL	6050	0	0.0	0.0		0.0	
Dad Creek Lake	SC	8800						
Daisy Peak	SNOTEL	7600	2	0.9	0.0		0.5	
Daly Creek	SNOTEL	5780	0	0.0	0.0		0.0	

Site	Network	Elevation (ft)	Depth (in)	SWE (in)	Median (in)	% Median	Last Year SWE (in)	Last Year % Median
Darkhorse Lake	SNOTEL	8600	45	20.1	26.0	77%	30.5	117%
Deadman Creek	SNOTEL	6450	0	0.0	0.0		0.0	
Desert Mountain	SC	5600						
Discovery Basin	SC	7050	0	0.0	0.2	0%	4.9	2450%
Divide	SNOTEL	7800	0	0.0	0.0		0.0	
Dix Hill	SC	6400					0.0	
Dupuyer Creek	SNOTEL	5750	0	0.0	0.0		0.0	
Eagle Creek	SC	7000						
East Boulder Mine	SNOTEL	6335	0	0.0			0.1	
El Dorado Mine	SC	7800						
Elk Horn Springs	SC	7800						
Elk Peak	SNOTEL	7600	0	0.0			16.9	
Elk Peak	SC	8000						
Emery Creek	SNOTEL	4350	0	0.0	0.0		0.0	
Fatty Creek	SC	5500						
Fish Creek	SC	8000						
Fisher Creek	SNOTEL	9100	40	19.9	28.1	71%	37.1	132%
Flattop Mtn.	SNOTEL	6300	39	18.9	32.3	59%	46.6	144%
Fleecer Ridge	SC	7500						
Foolhen	SC	8280						
Forest Lake	SC	6400						
Four Mile	SC	6900						
Freight Creek	SC	6000						
Frohner Meadow	SNOTEL	6480	0	0.0	0.0		0.0	
Garver Creek	SNOTEL	4250	0	0.0	0.0		0.0	
Gibbons Pass	SC	7100						
Goat Mountain	SC	7000						
Government Saddle	SC	5270						
Grave Creek	SNOTEL	4300	0	0.0	0.0		0.0	
Griffin Creek Divide	SC	5150						
Hand Creek	SNOTEL	5035	0	0.0	0.0		0.0	
Hawkins Lake	SNOTEL	6450	0	0.0	12.2	0%	11.4	93%
Haymaker	SC	8050						
Hebgen Dam	SC	6550						
Hell Roaring Divide	SC	5770	6	3.2	11.3	28%	23.7	210%
Herrig Junction	SC	4850	0	0.0	0.3	0%	14.8	4933%
Highwood Divide	SC	5650						
Highwood Station	SC	4600						
Holbrook	SC	4530						
Hoodoo Basin	SNOTEL	6050	21	10.8	23.5	46%	42.4	180%
Humboldt Gulch	SNOTEL	4250	0	0.0	0.0		0.0	
Jakes Canyon	SC	9040						
Johnson Park	SC	6450						
Kishenehn	SC	3890						
Kraft Creek	SNOTEL	4750	0	0.0			0.0	
Lake Camp	SC	7780						
Lakeview Canyon	SC	6930						
Lakeview Ridge	SNOTEL	7400	0	0.0	0.0		0.0	
Lemhi Ridge	SNOTEL	8100	0	0.0	0.0		0.0	
Lick Creek	SNOTEL	6860	0	0.0	0.0		0.9	
Little Park	SC	7400						
Logan Creek	SC	4300						
Lolo Pass	SNOTEL	5240	0	0.0	0.0		7.9	
Lone Mountain	SNOTEL	8880	0	0.0	8.4	0%	13.8	164%
Lookout	SNOTEL	5140	0	0.0	0.0		1.6	
Lower Twin	SNOTEL	7900	22	5.8	13.5	43%	16.1	119%
Lubrecht Flume	SNOTEL	4680	0	0.0	0.0		0.0	

Site	Network	Elevation (ft)	Depth (in)	SWE (in)	Median (in)	% Median	Last Year SWE (in)	Last Year % Median
Lubrecht Forest No 3	SC	5450						
Lubrecht Forest No 4	SC	4650						
Lubrecht Forest No 6	SC	4040						
Lubrecht Hydroplot	SC	4200						
Lupine Creek	SC	7380						
Madison Plateau	SNOTEL	7750	0	0.0	6.2	0%	5.9	95%
Many Glacier	SNOTEL	4900	0	0.0	0.0		0.0	
Marias Pass	SC	5250						
Mineral Creek	SC	4000						
Monument Peak	SNOTEL	8850	11	5.1	15.3	33%	14.4	94%
Moss Peak	SNOTEL	6780	35	18.5	28.4	65%	40.3	142%
Moulton Reservoir	SC	6850						
Mount Allen No 7	SC	5700						
Mount Lockhart	SNOTEL	6400	0	0.0	4.5	0%	12.9	287%
Mudd Lake	SC	7650						
Mule Creek	SNOTEL	8300	10	3.5	9.4	37%	11.3	120%
N Fk Elk Creek	SNOTEL	6250	0	0.0	0.0		0.0	
Nevada Ridge	SNOTEL	7020	0	0.0	2.5	0%	5.6	224%
New World	SC	6900						
Nez Perce Camp	SNOTEL	5650	0	0.0	0.0		0.0	
Noisy Basin	SNOTEL	6040	25	12.0	28.5	42%	33.7	118%
Norris Basin	SC	7550						
North Fork Jocko	SNOTEL	6330	10	4.4	21.2	21%	35.6	168%
Northeast Entrance	SNOTEL	7350	0	0.0	0.0		0.0	
Onion Park	SNOTEL	7410	0	0.0	2.4	0%	2.4	100%
Ophir Park	SC	7150			3.2		6.7	209%
Parker Peak	SNOTEL	9400	7	1.6	13.8	12%	21.2	154%
Peterson Meadows	SNOTEL	7200	0	0.0	1.3	0%	4.0	308%
Pickfoot Creek	SNOTEL	6650	0	0.0	0.0		0.0	
Pike Creek	SNOTEL	5930	0	0.0			0.0	
Pipestone Pass	SC	7200						
Placer Basin	SNOTEL	8830	22	8.4	13.1	64%	18.5	141%
Poorman Creek	SNOTEL	5100	0	0.0	0.8	0%	15.9	1988%
Porcupine	SNOTEL	6500	0	0.0	0.0		0.0	
Potomageton Park	SC	7150						
Revais	SC	4800			0.0			
Rock Creek Mdws	SC	3400						
Rocker Peak	SNOTEL	8000	9	4.2	10.6	40%	15.1	142%
Rocky Boy	SNOTEL	4700	0	0.0	0.0		0.0	
Roland Summit	SC	5120						
S Fork Shields	SNOTEL	8100	0	0.0	9.0	0%	10.6	118%
Sacajawea	SNOTEL	6550	0	0.0	0.0		0.0	
Saddle Mtn.	SNOTEL	7940	7	2.9	13.3	22%	27.5	207%
Short Creek	SNOTEL	7000	0	0.0	0.0		0.0	
Shower Falls	SNOTEL	8100	30	11.6	17.0	68%	24.4	144%
Skalkaho Summit	SNOTEL	7250	0	0.0	9.5	0%	10.2	107%
Sleeping Woman	SNOTEL	6150	0	0.0	0.0		0.0	
Slide Rock Mountain	SC	7100						
Spotted Bear Mountain	SC	7000						
Spur Park	SNOTEL	8100	25	10.9	13.9	78%	17.5	126%
Stahl Peak	SNOTEL	6030	18	9.0	25.8	35%	36.9	143%
Stemple Pass	SC	6600						
Storm Lake	SC	7780						
Stringer Creek	SNOTEL	6550	0	0.0	0.0		0.0	
Stryker Basin	SC	6180	22	10.8	20.1	54%	33.9	169%
Stuart Mountain	SNOTEL	7400	26	12.2	18.8	65%	31.3	166%

Site	Network	Elevation (ft)	Depth (in)	SWE (in)	Median (in)	% Median	Last Year SWE (in)	Last Year % Median
Taylor Road	SC	4080	0	0.0	0.0		0.0	
Ten Mile Lower	SC	6600						
Ten Mile Middle	SC	6800						
Tepee Creek	SNOTEL	8000	0	0.0	1.8	0%	0.0	0%
Timberline Creek	SC	8850						
Tizer Basin	SNOTEL	6880	0	0.0	0.0		0.0	
Trinkus Lake	SC	6100						
Truman Creek	SC	4060						
Twelvemile Creek	SNOTEL	5600	0	0.0	0.0		0.0	
Twenty-One Mile	SC	7150						
Twin Lakes	SNOTEL	6400	0	0.0	16.5	0%	29.9	181%
Upper Holland Lake	SC	6200						
Waldron	SNOTEL	5600	0	0.0	0.0		0.0	
Warm Springs	SNOTEL	7800	27	12.1	17.0	71%	25.1	148%
Weasel Divide	SC	5450						
West Yellowstone	SNOTEL	6700	0	0.0	0.0		0.0	
Whiskey Creek	SNOTEL	6800	0	0.0	0.0		0.0	
White Elephant	SNOTEL	7710	0	0.0	4.4	0%	0.0	0%
White Mill	SNOTEL	8700	24	12.0	16.9	71%	23.4	138%
Wolverine	SNOTEL	7650	0	0.0	0.0		0.0	
Wood Creek	SNOTEL	5960	0	0.0	0.0		0.0	
Wrong Creek	SC	5700						
Wrong Ridge	SC	6800						
Younts Peak	SNOTEL	8350			3.2			

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Report
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